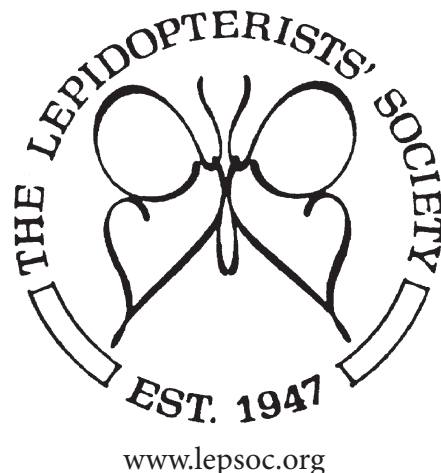

NEWS

OF THE

LEPIDOPTERISTS' SOCIETY

Volume 55, Number 4

Winter 2013



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***Chlosyne lacinia* life history and bionomics**

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"On the hunt" for North Woods butterflies

***Callophrys irus* dual host plant use at single MD coastal plain site**

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Hackberry butterflies in Death Valley NP

***Dinumma deponens* here to stay**

Membership Updates, Marketplace, Mailbag, Lep Soc Meeting 2014, Metamorphosis, Announcements ...

... and more!



NEWS OF THE LEPIDOPTERISTS' SOCIETY

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The Lepidopterists' Society is a non-profit educational and scientific organization. The object of the Society, which was formed in May 1947 and formally constituted in December 1950, is "to promote internationally the science of lepidopterology in all its branches; to further the scientifically sound and progressive study of Lepidoptera, to issue periodicals and other publications on Lepidoptera; to facilitate the exchange of specimens and ideas by both the professional worker and the amateur in the field; to compile and distribute information to other organizations and individuals for purposes of education and conservation and appreciation of Lepidoptera; and to secure cooperation in all measures" directed towards these aims. (Article II, Constitution of The Lepidopterists' Society.)

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Front Cover:

This specimen of *Eudocima serpentifera* represents the second confirmed record of the species in the U.S. The image was made on September 13, 2013 at the Medano Zapata Ranch in the evening. This location is on the southwestern corner of the Great Sand Dunes National Park, Alamosa County, Colorado. (Photo by Chris A. Pague)

A selection of Neotropical hairstreaks and metalmarks

George O. Krizek

2111 Bancroft Place NW, Washington, D.C. 20008

This is the third installment in a series of photo presentations (see Vol. 55, Number 1, pages 10-15 and Vol. 55, No. 3, pages 128-129). Presented here are 44 (including back of Newsletter) photographs of living species of Neotropical hairstreaks and metalmarks from Mexico, Guatemala, Costa Rica, Peru, Ecuador, and Brazil. Nikon cameras and either Ectachrome or Fuji diafilms were used. Based on my (George's) experience, Lycaenidae are much more cooperative than Riodinidae. Lycaenids usually sit on a flower, the ground, or other objects exposing the ventral side of the wings. Riodinids typically are more elusive and restless, often hiding themselves under a leaf after landing briefly on the upper surface, making approach with the camera much more difficult. Every photographer knows it, but we must never forget - if possible - to put ourselves between the sun's rays and the object we are photographing. If not, then colors are often hopelessly washed out. Enjoy!



Lycaenidae: *Arawacus separata*
Rondonia, Brazil, November 8, 1989



Lycaenidae: *Arawacus jada*, Antigua, Guatemala
Upperside: June 24, 2003; Underside: June 25, 2003



Lycaenidae: *Theritas mavors*
Top: Male, Tinalandia, Ecuador, May 7, 1990
Bottom: Explorama Lodge, Peru, July 20, 1999





Lycaenidae: *Mithras nautes*
Rondonia, Brazil, November 8, 1989



Lycaenidae: *Evenus satyroides*
Rondonia, Brazil, April 9, 1992



Lycaenidae: "*Thecla*" *terentia*
Tinalandia, Ecuador, May 6, 1990



Lycaenidae: *Paiwarria umbratus*
Puerto Vallarta, Mexico, February 18, 1988



Lycaenidae: *Rekoa meton*
Tinalandia, Ecuador, May 9, 1990



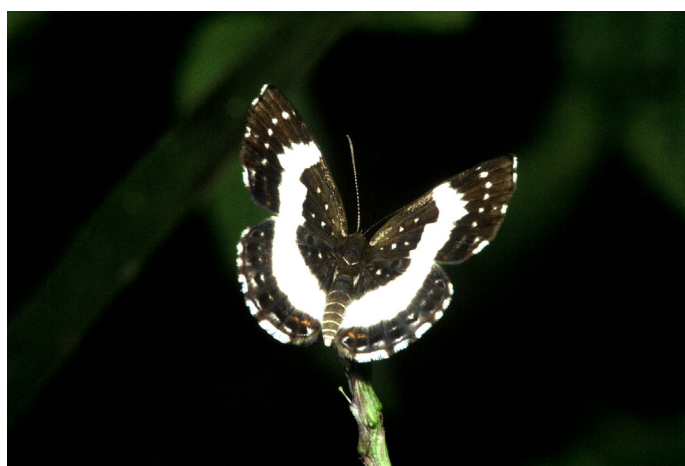
Riodinidae: *Emesis lucinda*
Curitiba, Brazil, March 15, 1984



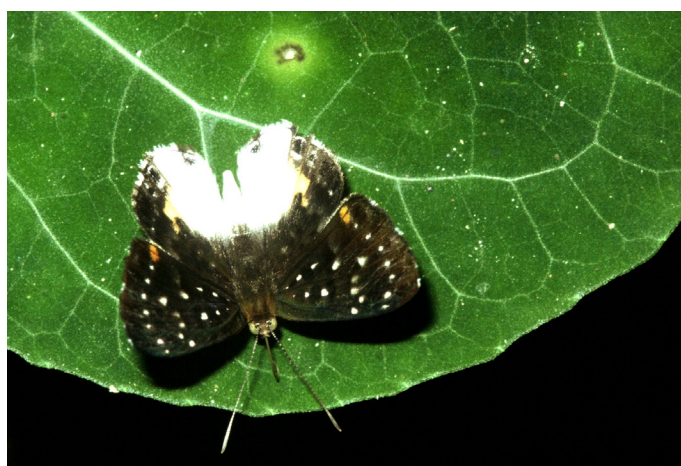
Riodinidae: *Caria* sp.
Rondonia, Brazil, April 9, 1992



Riodinidae: *Charis cleonus*
Explorama Lodge, Peru, July 18, 1989



Riodinidae: *Lemonias zygia*, female
Rondonia, Brazil, November 3, 1989



Riodinidae: *Lemonias zygia*, male
Rondonia, Brazil, April 5, 1992



Riodinidae: *Anteros formosus*
Rondonia, Brazil, April 19, 1992



Riodinidae: *Sarota chrysus*
Tinalandia, Ecuador, May 7, 1990



Riodinidae: *Euselasia arbas serapis*
Rondonia, Brazil, November 11, 1989



Riodinidae: *Eurybia lycisca*
Turrialba, Costa Rica, May 15, 1985



Riodinidae: *Euselasia* sp.
Villa Mills, Costa Rica, May 24, 1985



Riodinidae: *Eurybia halimede*
Explorama Lodge, Peru, July 16, 1989



Riodinidae: *Euselasia melaphaea*
Rondonia, Brazil, March 15, 1991



Riodinidae: *Thyranota galena*
Rondonia, Brazil, April 20, 1992



Riodinidae: *Semomesia croesus*
Rondonia, Brazil, November 3, 1989



Riodinidae: *Mesosemia telegona*
Turrialba, Costa Rica, May 14, 1985



Riodinidae: *Semomesia macaris*
Rondonia, Brazil, April 9, 1992



Riodinidae: *Leucochimona hyphea*
Rondonia, Brazil, April 18, 1992



Riodinidae: *Chamaelimnas pansa*
Rondonia, Brazil, November 8, 1989



Riodinidae: *Amarynthia meneria*
Rondonia, Brazil, November 7, 1989



Riodinidae: *Chalodeta theodora*
Rondonia, Brazil, November 9, 1989



Riodinidae: *Parcella amarynthina*
Rondonia, Brazil, November 9, 1989



Riodinidae: *Siseme aristoteles*
Tinalandia, Ecuador, May 10, 1990



Riodinidae: *Monethe albertus*
Rondonia, Brazil, November 4, 1989



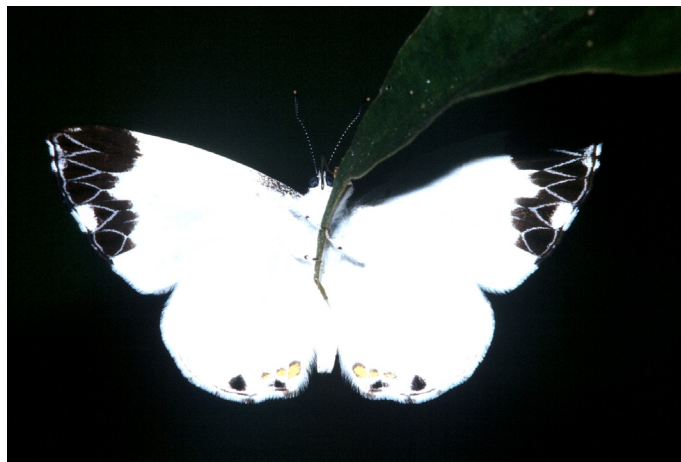
Riodinidae: *Calydna catana*
Rondonia, Brazil, March 22, 1991



Riodinidae: *Calydna punctata*
Rondonia, Brazil, March 22, 1991



Riodinidae: *Nymphidium azanoides*
Tinalandia, Ecuador, May 6, 1990



Riodinidae: *Nymphidium galactina*
Rondonia, Brazil, November 11, 1989



Riodinidae: *Crocozona caecias*
Rondonia, Brazil, November 8, 1989



Riodinidae: *Rhetus perianther*
Rondonia, Brazil, March 22, 1991



Riodinidae: *Ancylurus etias*
Rondonia, Brazil, March 29, 1991



Riodinidae: *Ancylurus miranda*
Turrialba, Costa Rica, May 15, 1985

Notes on the bionomics, life history, and preparatory stages of *Chlosyne lacinia* (Geyer) (Lepidoptera: Nymphalidae)

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Introduction

Prior to 1964, the year the author started research on the three polymorphic color larval forms of *Chlosyne lacinia* (Geyer), there were no studies of this polymorphism or studies of any genetic aspects of this species. Additionally, little information exists prior to this time about its biology that are the subject of this paper. What exists are in older papers (i.e., Edwards, 1893). Gorodenski (Gorodenski, 1969) published the first genetics study that correctly identified the genetic mechanism of the polymorphic color larval forms. The mechanism had actually been discovered two years earlier by the author but there was no pressing need to publish the results until shortly before receiving his M.S. degree in 1970. Neck (1975) successfully applied these results to demonstrate that the similar looking larval forms of *C. gorgone* are governed by the same genetic mechanism. The purpose of this paper, albeit over forty years late, is to document the other side of the author's research, the bionomic, life history, and the preparatory stages of *C. lacinia*.

The research was on *C. lacinia* in Arizona in the cities of Mesa, Tempe, and Chandler, citrus and crop fields (cotton, and alfalfa) in and adjacent to these cities, and Granite Reef Dam at the confluence of the Salt and Verde Rivers. They will collectively be referred to as the Valley, although the term "Valley", excluding Granite Reef Dam, colloquially covers a larger area of cities that includes Phoenix. The Valley is at about 1,100 ft. elevation and is in the Sonoran desert. Due to the localized geographical area of the research, some of the descriptions and information of this paper may not be applicable to other areas in its range.

C. lacinia, the Patched Butterfly (one of many other common names), in the U.S. occurs primarily in California, Arizona, New Mexico, parts of Nevada, and Texas. Beyond the U.S. its range extends through Mexico, Central America, and South America (Godman and Salvin, 1882), including Argentina (Ehrlich & Ehrlich, 1961).

This is a highly variable protean species not only in wing coloration but also in the larval and pupal stages. There are no secondary sexual differences in wing color and pattern. The only differences are those characteristic of Nymphalids, such as males possessing very hairy prothoracic legs, those of the females being bare or almost so.

The Adult

Originally, twelve species were described because of the highly variable adult wing color and pattern (Godman and Salvin, 1882). Godman and Salvin had the foresight to recognize these as "varieties" of the same species. Of the twelve, three were known to occur in the U.S.: *adjutrix* (Scudder), *mediatrix* (Felder & Felder), and *crocale* (Edwards). *C. mediatrix* was described as being between *lacinia* and *saundersi* but Higgins (1960) later synonymized it with *adjutrix*. Forbes (1928) constructed a key to fourteen "forms" of *C. lacinia* (incorrectly including *C. californica* as a form of *C. lacinia*).

Higgins (1960) recognized two principle forms occurring in the U.S.: *adjutrix* and *crocale*. He does not consider these as subspecies although he used the trinomial nomenclature. Dos Passos (1964) recognized five subspecies occurring in the Nearctic, but upon a revision (dos Passos, 1969) three were removed because they do not occur in the Nearctic. This left *adjutrix* and *crocale* which has held through all subsequent check lists up to the most recent (Pellham, 2008).

Higgins speculates "...more than likely...we are dealing with a range of colour forms, elaborated as components of different mimetic or cryptic associations, but without true geographical significance except possibly as determined by their models." This is consistent with the author's view that *adjutrix* and *crocale* are not subspecies but instead are either mere recombinational genetic forms, or representative of a cline. There is a higher frequency of *adjutrix* in Texas and a higher frequency of *crocale* in Arizona, but both forms occur side by side in both these states (Higgins, 1960). In the course of research by the author to determine the genetic mechanism of the larval forms (Gorodenski, 1969), *adjutrix*, *crocale*, and *nigrescens* (Edwards) (*nigrescens* was synonymized with *crocale* by Higgins) were routinely present in the offspring of single paired matings with an almost continual range of variation in between. These forms were also seen flying together in the field. The genetic and field observations are consistent with the author's view that the range of variation seen in the U.S. does not have any adaptive significance, such as cryptic or mimetic associations, and may possibly represent a cline.

Preparatory Stages

Egg Stage: The eggs are approximately 0.54 mm in diameter and 0.63 mm from top to bottom, are soft bodied, and are obovoid at the end attached to the host plant leaf. The top of the egg is slightly depressed and covered with a small bubble of a syrup like liquid. The egg appears to be covered with a thin layer of this same sticky material that may bind the eggs together as an egg cluster, and may attach the eggs to the leaf surface. Edwards (1893) reports twenty four rounded encircling ridges, but only eighteen were counted on eggs from Granite Reef Dam. Eggs change in color from a yellow-green, just after oviposition, to a deeper yellow a few days later, and then to gray prior to larval emergence.

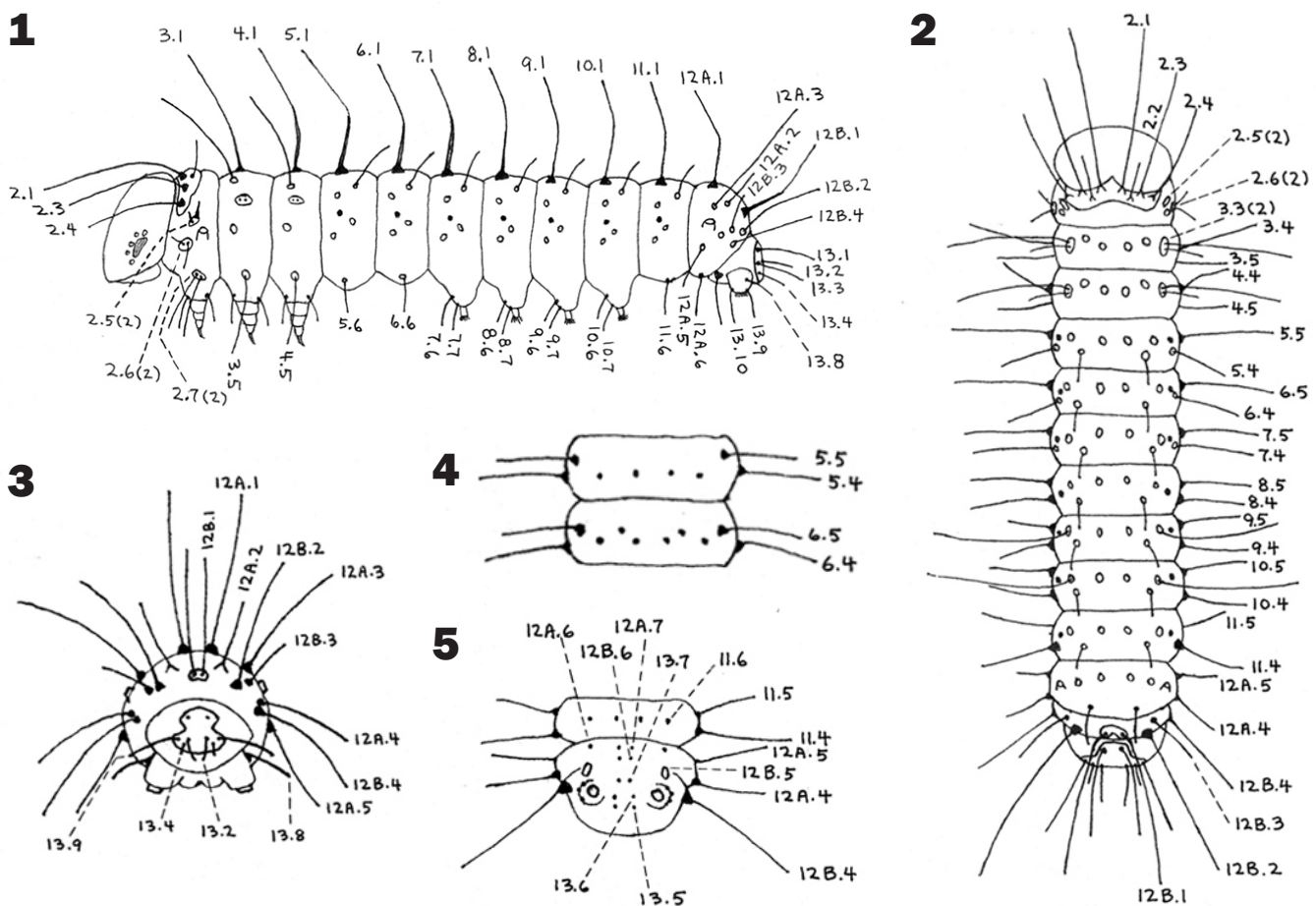
Larval Stage: Three polymorphic larval color forms exist: nigra, bicolor, and rufa (all described by Cockerell, 1893).

Nigra is the black form that is variable in the number of minute white spots dotted over the body surface. Another variable feature is a small yellow spot at the base of each mid-dorsal spine. In some individuals it is almost absent while in others it is very conspicuous.

Bicolor differs from nigra by having a mid-dorsal orange band extending the length of the body. This banded appearance is derived from large orange areas that are variable in size and pattern and occur one to each body segment, except for the prothoracic and anal segments.

The last form, rufa, is completely orange except for variable amounts of black pigment restricted to the segmented areas in the last instar. In some early instar larvae this pigment may be diffused between body segments to such an extent that a rufa can easily be mistaken for a bicolor. However, in the last instar the two forms are easily distinguishable.

There are five instars. Major setae and spine-like setae (setae somewhat more robust than a seta) are shown in figures 1-5 for the first instar. Setae not shown are those covering the head, between the thoracic leg segments (the three segmented legs), and the ventral region of the body. A few are shown on the prolegs. The setae and spine-like setae of only the first instar are illustrated because of their increasing number as the instars progress, the last possessing a confusing mass of setae on the whole ventral region and a sparser number over the rest of the body.



Figures 1 - 5. Setation on first instar larva of *Chlosyne lacinia*. (1) Lateral view. (2) Dorsal view. (3) Posterior view of last segments. (4) Dorsal view of first and second abdominal segments. (5) Dorsal view of last segments. See text, p. 144, for more explanation.

In figures 1-5, the number preceding the decimal point refers to the body segment, the head being segment 1. The number following the decimal point refers to the structural area containing setae or spine-like setae. Structural areas are imaginary divisions because there are no body demarcations that defines them. The structural areas are numbered from one to ten, consecutively, and starts from the mid-dorsal and proceeds to the mid-ventral. A number in parenthesis means there are that many setae or spine-like setae in that structure area. For example, 2.5(3) means the second segment (immediately behind the head) has three setae or spine-like setae in the fifth structure area. Segment twelve appears double segmented dorsally (see figure 2) but appears fused ventrally. As a result, instead of splitting this segment into segment twelve and thirteen, they are labeled 12A and 12B.

All the circles in figures 1 and 2 represent spine-like setae not shown. The black dots in figures 3-5 are setae not shown. In figures 1 and 2 the location of spiracles are indicated by blackened circles on segments 5-11.

The development of setae into spines on the dorsal plate is illustrated in figure 6. As can be seen, setae predominate in the first and second instar. Setae with a spine like appearance start appearing in the third instar, and in the last instar, the fifth, spines predominate.

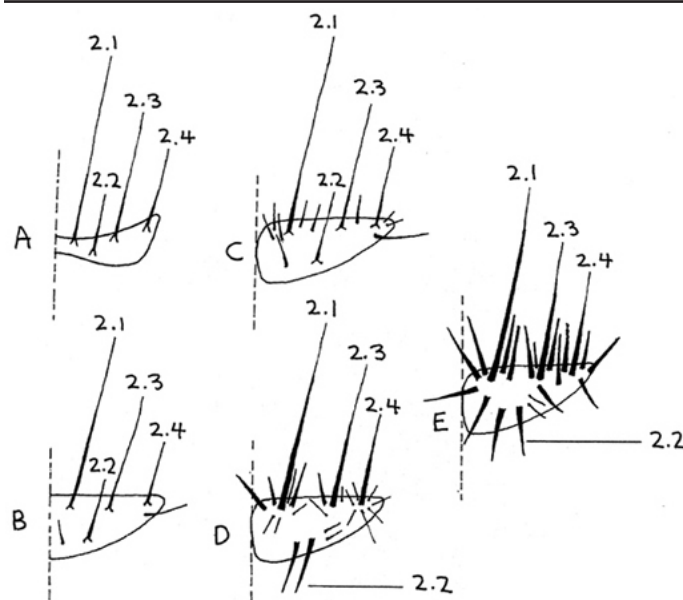


Figure 6. Setal development into spines on the dorsal plate of the pronotum. A through E represent the five successive instars.

Table 1 shows the development of setae, spines, and scoli for some of the body areas in figures 1-5. Unless indicated, the table gives modifications through instars of specific structures, or in one case a lack of a structure (the second row), as shown in column for the first instar. When a range is given, such as 7.5 to 10.5, it means only those structures in structural area 5, not 7.1, 7.2, 7.3...10.4, 10.5. As can be seen, branched spines, or scoli, make their appearance

in some structural areas in the second instar. The major transition to scoli occurs in the molt to the third instar.

From larvae collected in 1964 the approximate larval lengths were found to be:

after emergence	1.5 mm
after first molt	2.3 mm
after second molt	4.5 mm
after third molt	6.0 mm
after fourth molt	13.0 mm
just prior to pupation	18-20 mm

Newly emerged larvae are pale yellow, but turn a yellow-green after feeding on the host plant. The second instar larvae are light brown but some are slightly darker if they are the nigra or bicolor forms. Being able to confidently, or with very little error, differentiate between the three larval forms occurs in the third instar.

The scoli are brown from the second to the fourth instar, the branches becoming blackened at the tips. At fifth instar the scoli turn a solid glossy black. The cordate head is black throughout all stages. Head size was a good way to estimate larval instar in the field.

In diapausing larvae, that are reduced in length, the length of the scoli and the number of setae are reduced, and the head is smaller in proportion to the thickness of the body. The body segments turn an amber color, the head is especially amber in color, the scoli are tan rather than black, the edges of what is the bicolor mid-dorsal orange stripe appears more clearly defined, and the body surface has a sheen to it. The cast skin from a caterpillar molting out of diapause preserves the larval shape in contrast to the shriveled skin of a normal molt.

Pupal Stage: The pupae vary from about 10-14 mm in length. The pupae of all larval forms are highly variable

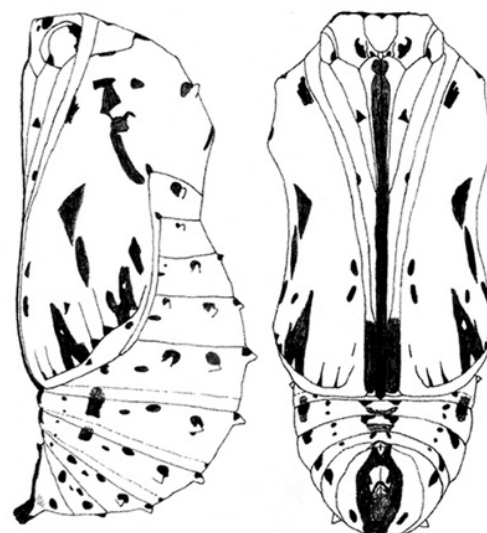


Figure 7. Representative pupa of *Chlosyne lacinia*.

Table 1. Setae and scoli development through instars.

<u>1st Instar</u>	<u>2nd Instar</u>	<u>3rd Instar</u>	<u>4th Instar</u>	<u>5th Instar</u>
2.5(2), setae	2.5(2), setae	2.5(3) setae	2.5(3) setae	2.5(3) setae
between 2.5 & 2.6, anterior to spiracle, no setae	2 spine-like setae	no extra scoli	no extra scoli	no extra scoli
2.6(2) & 2.7(2), setae	2.6(3) & 2.7(3), setae	scoli with 10 branches per scoli	Length of scoli and number of branches increase with each succeeding insta	
3.2 & 4.2, setae	3.2(2) & 4.2(2), setae	no change	no change	no change
5.6 & 6.6, setae	no change	no change	spines slightly developed	scoli smaller than 5.5 & 6.5, 6 branches each
5.5, 6.5, and 11.5, setae	5.5(3), 6.5(3), & 11.5(3), setae	scoli less than half the size of dorso-median scoli	scoli remain half the size of dorso-median scoli but their length and the number of branches increase with each instar	
7.5 to 10.5, spine-like setae	each developed into two sets with two spine-like setae each	scoli less than half the size of dorso-median scoli	scoli remain half the size of dorso-median scoli but their length and the number of branches increase with each instar	
3.1-12A.1, 3.3-12A.3 5.4-12A.4, spine-like setae	scoli, each with 5-7 branches	scoli length and the number of branches increase with each instar		
dorso-median area from 5-12A, spine-like setae	one scoli per segment with 12A acquiring two, 5-7 branches per scoli	scoli length and the number of branches increase with each instar		
dorso-lateral area of 12B, spine-like setae	scoli on each side, pointing to the posterior, 5-7 branches each	scoli length and the number of branches increase with each instar		
area on side of anal plates, spine-like setae	scoli on each side, pointing to the posterior & up, 5-7 branches each	scoli length and the number of branches increase with each instar		

in the number and extent of black markings (see figure 7), ranging from one almost devoid of markings to one almost totally blackened by them, and in the presence of a creamy white or light yellow background coloration. Some type of correlation exists between the background coloration and the amount of black markings since heavily marked pupae are never yellow and, alternatively, those nearly devoid of markings are never white. The white and yellow phases are discrete (i.e., they are not the ends of a range), not sex-linked and, therefore, may be polymorphic or linked to a trait maintained by a balanced polymorphism. Rufa pupae were observed to generally have more black markings than bicolor and nigra.

Bionomics and Life History

C. lacinia is multibrooded and will go through as many generations as the season permits. It has a strong preference for sunflower (*Helianthus annuus* L.), but has been observed to transition to other plant species after a sunflower plant had been denuded. *Xanthium strumarium* (L.) (formerly *X. saccharatum* (Wallr.)), cocklebur, is in the sunflower family, but where the author has found *C. lacinia* larval colonies on sunflower along dry or running stream beds and washes, there were plentiful, often dominant stands of *X. strumarium*. Larval colonies were never found on cocklebur in the absence of sunflower, with one exception. In the fall of 1964 a thriving population

was found on cocklebur at Granite Reef Dam. Granite Reef Dam is just below the joining of the Salt and Verde Rivers and is situated midway between Saguaro Lake and the city of Mesa, Arizona. The area immediately below the dam at one time was a favorite collecting spot for entomologists. This was the first and only time a thriving population on cocklebur has been observed. It was documented by Neck (1973) as a result of personal communication with the author. It was a quite unique occurrence, but, unfortunately, this area was completely destroyed by several major floods in the ensuing years and is now nothing more than the usual rocky and sandy river bed when water is not released.

The 1960's was a good time for agriculture and studying *C. lacinia* in the Valley. Citrus and agricultural crop fields (cotton and alfalfa) were very prevalent both within and adjacent to Valley cities. *C. lacinia* was very abundant, then, primarily because of agricultural practices that resulted in good sunflower stands along ditch banks and at irrigation water runoff ends of crop fields. Some of the sunflower stands occupied very large areas and supported large *C. lacinia* populations. However, because of changes in agricultural practices, urban development, and insecticidal spraying for west Nile Virus, it is now extremely difficult to find *C. lacinia*. About 10 years ago the author found one alfalfa field inside Phoenix surrounded by homes. It had a good population of *C. lacinia* because the grower used the field for cattle grazing and so he did not apply herbicides or insecticides. The farm eventually was sold and is now the site of a housing subdivision. If the author had to do the research now that he did in the 1960's, he would have to rear larvae on artificial media, as researches have done since the author's work, and the field work to study the dynamics of the larval forms spatially and through time would not have been possible.

As initially mentioned, *C. lacinia* is multivoltine with the number of generations being a function of generation time. An estimate of generation time in the lab at 80° F can be obtained from the data of six matings given in Table 2. From this table, the average time from oviposition to emergence is 7.7 days, the average time spent in the larval stage is 15 days (the female column), and in the pupal stage 5.7 days. It is assumed it takes two days from time of female emergence to being able to fertilize eggs, and one day from copulation to ovipositing the first cluster. Adding all these numbers produces a laboratory generation time of 31.4 days – again, at 80° F. Assuming the same amount of time from adult emergence to the deposition of the first egg cluster, it has been observed a generation can be completed under field conditions in as few as 25 days. This is because the lab temperature was 80° F but the daytime temperatures in the field in the summer months are over 100° F. Later in the summer nighttime temperatures can be over 90° F. From this, it is estimated approximately 4-5 generations can be completed by the end of the season in the Valley.

A female oviposits eggs in clusters and oviposits a number of clusters during its lifetime. Some indication of fertility and egg cluster size from ten matings can be obtained from Table 3. In the laboratory, the average fertility per female was 432.6 eggs. One female, cross 23b, produced 1,169 eggs before dying. It oviposited seven clusters in its lifetime. Female 23a oviposited nine clusters but it did not have as high fertility. The average cluster size was 154.5 eggs with a high of 288 in a bicolor x rufa mating.

Adult females oviposit eggs near the base of the plant and, frequently, in such a manner that the first three instars are hidden from easy observation by a sampler walking through a field. When the larval population becomes larger, individuals can be found feeding along the entire length of the plant, except for the young leaves near the top.

Table 2. Life history data from laboratory reared progenies.

Mating Number	Duration of Larval Stage (in days)*		Duration of Pupal Stage (in days)*		Total number of egg clusters oviposited on successive days**								Average Duration of egg stage (in days)	Average No. Offspring per Cluster
	M	F	M	F	V-29	V-30	V-31	VI-1	VI-2	VI-3	VI-4	VI-5***		
22b	15	15	5	6	-	1	1	2	1	1	-	-	7.7	180
22c	14	15	6	5	1	-	1	1	-	-	-	2	7.3	152
23a	14	15	6	6	-	1	2	2	2	1	-	1	7.8	95
23b	15	15	5	6	-	1	2	-	2	2	-	-	7.9	167
23c	14	15	6	5	-	1	1	-	2	-	-	-	8.0	264
23e	14	15	6	6	-	1	2	-	1	1	1	1	7.7	206

* M = male, F = female

** Copulation for each mating was performed on May 28, 1967.

*** Month and day.

Table 3. Fertility and cluster size by mating type.

Mating Type	Egg Cluster	Larval Count			Grand Total
		Nigra	Bicolor	Rufa	
Nigra x Bicolor	1	124	117	-	241
	2	35	40	-	75
	3	95	74	-	169
	Totals	254	231	-	485
Nigra x Bicolor	1	90	99	-	189
	2	66	77	-	143
	Totals	156	176	-	332
Bicolor x Bicolor	1	7	32	-	39
	2	15	48	-	63
	Totals	22	80	-	102
Bicolor x Bicolor	1	26	80	-	106
	2	10	27	-	37
	Totals	36	107	-	143
Bicolor x Bicolor	1	26	93	-	119
	2	54	154	-	208
	3	38	90	-	128
	Totals	118	337	-	455
Bicolor x Rufa	1	43	85	121	249
	2	23	57	84	164
	3	28	61	67	156
	4	37	101	150	288
	Totals	131	304	422	857
Rufa x Rufa	1	-	22	45	67
	2	-	35	110	145
	3	-	54	138	192
	4	-	14	47	61
	Totals	-	125	340	465
Rufa x Rufa	1	18	45	161	224
	2	8	25	81	114
	Totals	26	70	242	338
Rufa x Rufa	1	17	36	156	209
	2	11	43	189	243
	3	18	40	146	204
	4	18	45	166	229
	Totals	64	164	657	885
Rufa x Rufa	1	10	26	96	132
	2	12	19	101	132
	Totals	22	45	197	264
Average fertility per mating: $4326/10 = 432.6$ eggs					
Average cluster size per mating: $4326/28 = 154.5$ eggs					

The eggs are oviposited underneath mature sunflower (or cocklebur) leaves in clusters from one to three egg layers deep. Eggs on the bottom layer (in contact with the leaf surface) are in contact with each other, stand upright, and exhibit an orderly arrangement. Those in the second layer deviate a little from being orderly, but in the third layer there is no order at all. The eggs are lopsided in every direction with spaces in between.

Larvae are gregarious from the first to the fourth instar, and molt together at the same time. The first to fourth instar larvae are leaf skeletonizers and feed in tightly packed colonies on a leaf. The first two instars are nearly always found underneath a leaf. Movement of the colony from a skeletonized leaf is usually to an adjacent leaf or those growing higher on the plant. The author has seen a colony migrate to a ragweed plant that happened to be in contact with the sunflower. During the migration to another leaf, the family unit may split into two or more groups. There may also be a merger of two or more colonies, which accounts for a mix of instars that is sometimes seen in field colonies, but a tightly packed feeding group is always reestablished. Thus, a colony in the field may be larvae from one egg cluster, a subset, or possibly a mixture of two or more colonies. When feeding they lay a network of silk wherever they go (except the last instar), possibly for better footing. In the last instar, the fifth, the larvae begin to disperse individually and eat through sections of a leaf rather than skeletonizing it.

Tachinid flies and Chalcid wasps have been observed to parasitize only last instar larvae. A caterpillar parasitized by a Tachinid can be easily recognized by the presence of minute (0.5 mm or less), white, elliptically shaped eggs attached to its dorsal scoli. When disturbed, larvae drop to the ground which is probably is also a strategy to counter ant predation. This was brought home when the author was doing his research on the genetics of the larval forms. When possible, the progeny of adult crosses were reared in the field by enclosing an entire sunflower plant in netting. Special measures had to be taken at the base of the plant to prevent red ants, about 1/16" long, from getting inside and devouring all larvae. The author has never seen predation by these red ants in the field under natural conditions. It may be larvae escape ant predation by dropping to the ground, but in a net when they drop they are still in it. Larvae also engage in a group response to a threat instead of dropping to the ground. In one instance, a small fly was observed inspecting a tightly packed second instar colony on the upper surface of a cocklebur leaf. All members of the colony were seen lashing about the anterior halves of their bodies in jerky movements until the fly left.

Molting begins by individuals of a colony congregating in a closely packed group usually under the leaf of the food plant. In the lab they may congregate in the corner of the petri dish, and, occasionally, those in the corner will spin a silk webbing around themselves, somewhat like tent

caterpillars. On sunflower, a silk mat is spun into which are attached the anal prolegs. The larvae then remain in an inactive position for about 24 hours.

The molting process starts by the body becoming greatly distended, as though it was bloated from sickness. A series of pulsating movements begin, starting from the posterior to the anterior within one minute of the swelling. The head is the first to break through the skin, the body following with pulsations still occurring. The exuvia is left behind as a crumpled mass. In some instances the old head cuticle is still attached to the larva, but drops off immediately or within a minute of molting. Larvae having just molted resemble diapausing larvae in coloration, but normal color is restored within two hours, at which time they start feeding. Molting can sometimes be initiated prematurely in a larva close to molting by squeezing the body lightly with forceps.

Once pupation is started it is completed within 24 hours, the pupae hanging head downwards and attached to a silk pad by the cremaster.

Larvae start entering diapause in October even though there is still plenty of sunflower available. In *C. lacinia* this is not merely an inactive state with reduced metabolism. The larvae actually make a special molt into diapause, normally at the fourth instar but sometimes the third and rarely the fifth. Diapausing larvae move very slow and sluggishly, possibly because the thickened cuticle characteristic of diapause impedes movement. As mentioned previously, when a larva leaves diapause the cast skin holds its shape compared to the crumpled mass of a normal larva.

Entering diapause while food is still available indicates the trigger for diapause is not the scarcity of food. According to Patton (1963), photoperiod and temperature are the two principal factors stimulating diapause in insects, with photoperiod the one most likely triggering its onset. Lees (1955) states the termination of diapause in the majority of insects is controlled by temperature.

During the research to determine the genetic mechanism of the larval forms, the author made use of diapause to get larvae through the winter until sunflower was available the following year. Larvae from genetic crosses were forced into diapause by reducing the exposure to light (turning off an incandescent lamp) and lowering the temperature to 75° F. To take larvae out of diapause, they were first placed on a sunflower leaf in a 6" petri dish whose petiole was inserted in a slit in nine layers of thoroughly wet paper toweling. Then the temperature was raised to about 88° F with an incandescent bulb. During this period, while still in diapause, the larvae have the ability to feed and take in water and frequently do. However, only a small amount of feeding occurs in diapause.

C. lacinia exhibits what is termed a "long day" response (Lees, 1955), i.e., one to two weeks are required to leave diapause after the temperature and light level has been raised. After leaving diapause, feeding is sporadic, and a longer period of time is required to reach larval maturity than would occur in normal *lacinia* larvae at this stage of development.

Cockerell (Edwards, 1983) states larvae "hibernate" gregariously in dead curled up leaves of sunflower. This was observed, with the qualification that they are dried curled leaves on the plant, not on the ground. It was also observed that a silk mat is spun over the leaf surface and over any openings, thus creating an enclosed chamber, possibly serving for protection against spiders, Myrmeleontids, Tenebrionids, or other potential predators.

Larvae leave diapause by molting out of it, again head first. It was found in the lab that in the absence of fresh sunflower, larvae that leave diapause can sustain themselves on moistened dried sunflower or cocklebur leaves. Individuals in a natural population begin leaving diapause during the months of March and April. Based on the time it takes larvae to leave diapause (one to two weeks) after the initial stimulus to do so (raised temperature and constant light) and the long day response, it may be April or May before the females are laying eggs. It is usually not until June or July that large larval populations can be found.

It is not known how prevalent diapause is throughout the range of *C. lacinia*, whether it can be induced if not occurring in some of the non-desert Neotropical areas, and whether the extraordinarily thick cuticle is prevalent throughout its range or an adaptation to the xeric conditions in the SW U.S., Texas, and other similar xeric areas in its range from Mexico to Argentina. This would be an interesting study and may provide some insight into the environmental conditions under which *C. lacinia* initially evolved.

Acknowledgments

I would like to thank Kilian Roever for suggesting *Chlosyne lacinia* as a study insect way back when. I would like to thank Drs. Frank F. Hasbrouck and Gordon Bender at Arizona State University for giving me research space as an undergraduate to pursue research on *C. lacinia* for my own interest and later as research for my M.S. degree.

Literature Cited

- dos Passos, C. F. 1964. A synonymic list of the Nearctic Rhopalocera. Memoir No. 1, The Lepidopterist's Society. vi + 145 pp.
- dos Passos, C. F. 1969. A revised synonymic list of the Nearctic Melitaeinae with taxonomic notes (Nymphalidae). J. Lepid. Soc. 23(2): 115-125.
- Edwards, W. H. 1893. Notes on a polymorphic butterfly, *Synchlœ lacinia*, Geyer (in Hub. Zutr.), with a description of its preparatory stages. Can. Ent. 25:286-291.

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The Mailbag . . .

Dear Editor,

In the Society business update (Fall 2013, p. 120) I read with alarm that “it was important to increase the impact factor of the Journal, which will entail increasing the rejection rate for papers submitted to around 40%.”

The vast majority of our members are not professional academics and are unlikely to have any idea what an “impact factor” is, or why it might be important to raise it. “Impact factors” (IFs) are statistics used to quantify the prestige of scientific journals. They are used primarily in decisions relating to promotion and tenure at institutions of higher education, particularly “elite” institutions. Academics try to get their work published in the journals with the highest IFs, knowing this strengthens their case for advancement. Most of us who are inside academe know all too well that the IF is often used as a labor-saving substitute for actually reading and understanding one’s work--*where* you publish becomes more important than *what* you publish. The worst IF snobs, who often include Deans and other administrators, sometimes consider that not publishing at all is preferable to publishing in a “third-rate” (by IF standards) journal. It’s a situation tailor-made for abuse, and regularly is abused.

The highest-status work on Lepidoptera by and large is published in broad-interest, high-IF journals (*Science*, *Nature*, *Proceedings of the Royal Society*, *Evolution*, *Ecology*, *Proceedings of the National Academy of Sciences*, *American Naturalist*, blah blah) and not in journals with a focus on a particular taxonomic group, like ours--which, because of their narrow focus and hence relatively small readership, will always have low IFs. As a result, much of this work never comes to the attention of non-professional Lepidopterists at all. We could attract more of it by raising our IF--but at the cost of closing off one of the few remaining venues where non-professionals (like nearly all our members) can publish. I believe that is totally wrongheaded and will be catastrophic in the longer term. If we turn JLS into a high-status tool for academic careerists, we are telling amateur Lepidopterists what we think of them: not much.

All such discussions seem to forget that the purpose of scientific communication is precisely that: *communication*. Authors have a story to tell and there is an appropriate audience who should hear it. In the best of all possible worlds, manuscripts would be submitted to the journals whose profiles and readership they best fit. The IF system grossly distorts the reality. We should not contribute to furthering that distortion.

Space is limited in all journals, and editors must prioritize. In the high-status, high-IF journals competition for space is

so keen that the vast majority of submissions are rejected. In the highest-IF cases, MSS are pre-screened and those given little chance to survive the review process are simply returned unreviewed. Authors then move down a hierarchy of journals until they get their MS accepted *somewhere*. For journals like ours, this is a boon: we get some of our best articles that way. (Getting rejected by *Nature* is like failing to get a date with a movie star. There’s no harm in trying, but you don’t really expect to succeed, and it’s no shame if you don’t.)

The bottom line is that manuscripts need to be judged on their own merits and should never be rejected solely to meet a quota. They need to be considered in the context of the existing pool of submissions. There will always be prioritization because space is finite, but no submission that merits publication should be returned entirely “on the numbers.”

I’ve been in academia for going on 50 years and I’ve seen a lot of abuses. I’ve seen “the numbers” (standardized test scores) used as an arbitrary cutoff to discard unread the applications of would-be students, thereby saving the admissions committee the labor to read them. (And I’ve seen very high-quality people thrown away on that basis.) I’ve seen tenure denied because a scholar who worked in East Asia published his important papers in the language of the country where his appropriate audience was. I can go on, and all of us can go on. We do not need to import this kind of nonsense into our Society’s publication policies. And we shouldn’t.

One more point: it *is* a pity that much of the high-quality work published in high-IF journals goes under the radar of much of our membership. Many years ago the *Journal* (actually, Peter Bellinger) attempted to abstract such stuff for their benefit. That is completely untenable today. But it would be wise to invite one or two distinguished professionals to write appropriately-slanted reviews of their research programs to be published in the *Journal* each year. For example, how many of our members are familiar with the extraordinary work by Paul Brakefield and his associates on the developmental genetics of butterfly wing patterns? I know an overview of this work by Brakefield would generate enormous interest. If we want to raise the quality of our content, that’s a really good way to go.

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Here are two VERY relevant publications, just out.

<http://www.plosbiology.org/article/info:doi/10.1371/journal.pbio.1001677>

<http://www.plosbiology.org/article/info:doi/10.1371/journal.pbio.1001675>

Hackberry butterflies (*Asterocampa celtis*) photographed in Death Valley National Park: Resident species, strays or accidental occurrence?

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Hackberry Butterflies or Emperors (*Asterocampa celtis* (Boisduval & LeConte)) are not known to occur naturally anywhere in California though their larval host hackberry trees do occur sparingly in some areas inside southern California. Tim Friedlander (1986(1987)) stated "John Emmel (in correspondence) gives one record of this butterfly from the San Bernardino Mts. in southern California, tentatively considered a stray."

One of the interesting things about working as a State Coordinator for BAMONA (=Butterflies and Moths of North America) is that anyone regardless of experience or knowledge can submit photographs of butterflies or moths accompanied by locality, dates and other information. Sometimes, such submissions are of butterflies of great interest resulting in new COUNTY or regional records.

Stacy Holt, a Wildlife Biologist at the Great Basin Institute in Death Valley National Park submitted such a photograph and data for Jay Snow who had taken a photograph of a living butterfly at a residence (329 Skyline Dr. on the back porch) near Cow Creek (an employee housing area) inside Death Valley National Park in California on June 27, 2012.

It is clearly an *Asterocampa celtis* that appears to be of the southwestern subspecies (*montis* (W. H. Edwards), a synonym of *antonia* (W. H. Edwards) according to Pelham 2008). The record was accepted and Stacy Holt and Jay Snow were contacted for more information.

Jay Snow had other photographs of a dead *Asterocampa celtis* taken at the same back porch near Cow Creek some days earlier on June 12, 2012. The record had been submitted to another organization which reported rejected it because the butterfly was dead. In any case, Jay Snow has photographs illustrated here that confirm two of these butterflies somehow found their way to Death Valley National Park.

The remaining question is that of status. According to Park Botanist Jane Cipra, there are no known Hackberry Trees (the larval host of this butterfly) within the Parks'

boundaries. Were the two *Asterocampa celtis* accidentally imported inside a vehicle? Were they strays from other regions? Without a larval host available, this species is very unlikely to be breeding within the Park.

It is possible that strays might reach California from small known or unknown colonies or populations in Nevada (Kilian Roeber has collected this species in Clark County, Nevada in the Virgin Mtns. 0.4 mi. N of Nay (Whitney on maps) Ranch, September 11, 1978 (Austin, 1980(1981)). There is also a small colony of *A. celtis* known from north-western Arizona in Mohave County in the Hualapai Mts. (personal records by co-author Ken Davenport, Richard P. Meyer, Alex Grkovich and likely Kilian Roeber).

At this point, it appears likely these two individuals were accidentally imported into Death Valley National Park. The fresh condition of the living *Asterocampa celtis* suggests that it was imported here rather quickly and did not stray from a long distance which likely would have caused fading and wear to the butterflies wings. This may be a subject for future research inside Death Valley National Park, requiring proper permits from the National Park Service.



Asterocampa celtis in Death Valley (at 329 Skyline Drive, Cow Creek). Left top and bottom: June 27, 2012; Right top and bottom: June 12, 2012. (Photos by Jay Snow)

Literature Cited

- Austin, George T. and Anna T. Austin. 1980 (1981). Butterflies of Clark County, Nevada. Journal of Research on the Lepidoptera. Pp. 1-63.
- Friedlander, Tim 1986(1987). Taxonomy, Phylogeny and Biogeography of *Asterocampa* Rober 1916 (Lepidoptera, Nymphalidae, Apaturinae). Journal of Research on the Lepidoptera (25:4:215-338). See pg. 252.
- Pelham, Jonathan P. A Catalogue of the Butterflies of the United States and Canada. Journal of Research on the Lepidoptera. Volume 40: 652 pages.

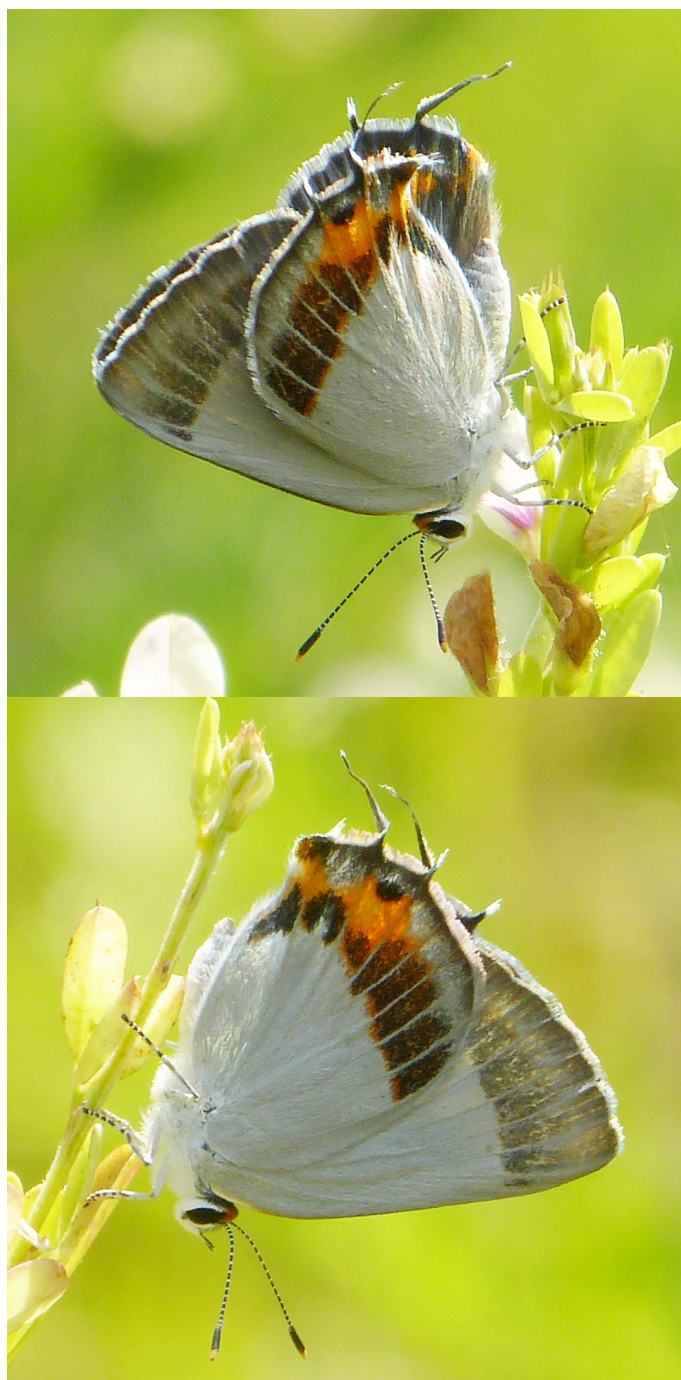
Bionomics and Life History of *Chlosyne lacinia*

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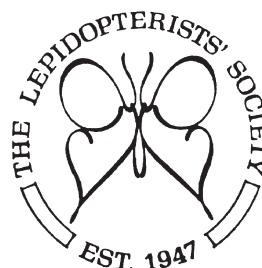
- Ehrlich, P. R., A. H. Ehrlich. 1961. How to know the butterflies. Wm. C. Brown Company Publishers. 262 pp.
- Forbes, Wm. T. M. 1928. A Key to the forms of the genus *Chlosyne*. (Lepidoptera, Nymphalidae). Ann. Ent. Soc. Amer. 21: 98-100.
- Godman and Salvin. 1882. Biologica Centrali-Americana. Vol 1: 176-178.
- Gorodenski, S. A. 1969. The Genetics of three polymorphic larval colour forms of *Chlosyne lacinia*. Genetical Research. 14: pp. 333-336.
- Higgins, L. G. 1960. A revision of the Melitaeine genus *Chlosyne* and allied species [genera] (Lepidoptera: Nymphalinae). Trans. Roy. Ent. Soc. Lond. 112: 381-467, 137 figs.
- Lees, A. D. 1955. The physiology of diapause in arthropods. The University Press, Cambridge. 150 pp.
- Neck, R. W. 1975. History of scientific study on a larval color polymorphism in the genus *Chlosyne* (Nymphalidae). J. Lep. Soc. 14(1): 41-48.
- Neck, R. W. 1976. Lepidopteran foodplant records from Texas. J. Res. Lepid. 15(2): 75-82.
- Patton, R. L. 1963. Introductory insect physiology. W. B. Saunders Co., Philadelphia and London. 245 pp.
- Pelham, J. P. 2008. A catalogue of the butterflies of the United States and Canada. J. Res. Lepid. Vol. 40. 652 pp.



Have you ever seen such happy caterpillars? Posterior views of 12 fully-grown Promethea Moth caterpillars (*Callosamia promethea*). That's right, happy bums! (Photos By Andrew D. Warren)



Aberrant Gray Hairstreak (*Strymon melinus*), Piedmont National Wildlife Refuge, Jones Co., Georgia, Aug. 31, 2013. Top: underside left; Bottom: underside right. (Photos by Rose Payne)



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"On the hunt" for the North Woods butterflies a great success!

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As Published last winter in volume 54, number 4 edition of News of the Lepidopterists' Society, I began a research project called, "On the Hunt for the North Woods Butterflies" early in the summer of 2011. It was great to have my article "Rarely Seen Butterflies Visit the North Woods" published. At that time I believed that there were 77 species of butterflies and skippers that should exist in the Chippewa National Forest, Lake Bemidji State park, and neighboring Beltrami Island State Forest. All of these areas are located in Cass and Beltrami counties of Northern Minnesota. I was thrilled to find rarely seen species such as: Little Yellow (*Pyrisitia lisa*), Variegated Fritillary (*Euptoieta claudia*), Common Buckeye (*Junonia coenia*), and the elusive Dainty Sulphur (*Nathalis iole*). Determined to find, and photograph them all, I have now spent the past three summers extensively hunting, and have taken over 10,000 photos. Within that time, I came to understand that there were probably 88 species that exist here. The majority of the species were easy to find the first two summers, leaving 8 species to find in 2013 to finish the hunt.

I was actually glad that spring came late, because my job as the Science Teacher at Bug-O-Nay-Ge-Shig High School here on Leech Lake Reservation, kept me so busy that I feared I wouldn't have any time to seek out the spring species I needed to find. Finally the snow melted. I was excited and anxious to begin "On the Hunt 2013" and find the last 8 species: Red-disked Alpine (*Erebia discoidalis*), Olympia Marble (*Euchloe olympia*), Jutta Arctic (*Oeneis jutta*), Appalachian Brown (*Satyrodes appalachia*), Tawny Crescent (*Phyciodes batesii*), Dorcas Copper (*Lycaena dorcas*), Greenish Blue (*Plebejus saepiolus*), and Gray Copper (*Lycaena dione*).

It didn't take long for me to realize why these 8 species were last. The environments that they live in are not easy to access, with many miles between them, and they are listed in Larry Weber's, "Butterflies of the North Woods" Field guide as rare or unusual to see. These obstacles did not stop me. I began the hunt. First on my list was the elusive Olympia marble. I looked, and looked for it until its life time expired, with no luck. I was disappointed but needed to move onto the next 7.

Finally on June 15th I was successful, finding one of the 7 at Big Bog State Park in the Beltrami Island State Forest. While walking slowly down the mile long walk of this largest Bog in the lower 48 states, it was a surprise when a brown butterfly flew up right in front of me. I was walking through an area of old black spruce trees. Instantly I knew

it had to be either the Red-disked alpine, or a Jutta arctic. What I didn't realize at that time was the wonders of butterflies I was about to discover.

As the brown butterfly made its way to the branch of a spruce tree, I quickly raised my camera, looked for the butterfly in my view finder, and began to take photographs. This creature was really shy, and attempted to hide from me behind a branch. I was able to get one good identifying shot before it flew off, and mysteriously disappeared into the bog. Where did it go? That was a weird flight pattern. I was confused about how it disappeared. I wasn't sure which species it was, as my field book was back in the car. I continued to walk slowly down the Bog walk searching for another sign of this species. As luck would have it, I saw 3 more, in flight, but they too disappeared mysteriously into the bog.

My heart was pumping with excitement that couldn't be rewarded, because I had to leave the bog for the visitor's center to give my "On the Hunt" butterfly presentation (The Minnesota Department of Natural Resources contracted me to give my power point presentation of "On the Hunt for the North Woods Butterflies" at 6 State Parks). My watch telling me that I might be late, I ran down the bog walk, and drove quickly to get there on time. In those hasty moments a plan was forming in my mind. I will come back after the presentation to seek out this species, and try to get better photos. I jumped in my car, took off for the visitor's center, opening my field book at the same time and realizing that I found the Jutta arctic... yahoo!

After the presentation, I drove back to the bog. Walking up and down the trail, I searched, but was disappointed not to see any more Jutta's. I would not give up having a photo session with this shy butterfly. On my long, 95 mile drive home, I decided tomorrow is another day. I will drive back to Big Bog State park very early in the morning and find them once more!

The next day was promising, the sun was barely rising as I reached Big Bog State park, and began my third attempt to locate and photograph the Jutta arctic. As I entered the black spruce area, my steps became very slow, my eyes searching everywhere. Then it happened again, seemingly out of nowhere, a Jutta arctic flew up right in front of me and landed on the branches of a black spruce tree. My camera was ready. I quickly aimed, focused and began to shoot. Wow! The sun was rising behind the butterfly, with the light shining through the wings illuminating the

rarely seen spots of its forewings. No time to think, just shoot. I got 2 more shots as it closed its wings, hiding the spots. Now it hung there silently. With great patience, I stood quietly watching it, arms raised, camera ready. Minutes seemed like hours as my arm muscles began to ache. There was no sign of the butterfly moving, it was at rest, I decided to move on and find another one.

Again walking slowly down the bog walk another Jutta arctic flew up, but chose to land on the bog walk a few feet ahead. I slowly sat down on the walk, and began to observe it, and take photos and video of its behavior. It was then that I realized that this butterfly truly is interesting. It moves in jutts, ah, hence the name Jutta arctic. It flies mostly low to the ground, as it passes over labrador tea blossoms, and cotton sedge grasses, and then retreats into the black spruce trees where it closes its wings up tight and quietly hangs upside down. I spent a long time, with no success, seeking one that was nectaring.

As time passed, my observations paid off. I discovered how it comes seemingly out of nowhere. When this species is basking in sunlight on the bog walk it positions itself among the fallen pinecones. If a person is walking along, and disrupts it, it flies up. What a clever disguise.



Jutta Arctic (*Oeneis jutta*); sunlit from behind and “disguised” as a pine cone. Big Bog State Park, Beltrami Island State Forest.



Jutta Arctic (*Oeneis jutta*); on the bog walkway.
Big Bog State Park, Beltrami Island State Forest.

It mimics a pinecone on the ground, and also up in the branches of the black spruce trees.

What about the weird flight pattern? When intimidated the Jutta arctic flies off into the bog. Like a pine cone falling from a tree, it suddenly closes its wings and gravity takes it directly to a branch of a black spruce tree or the floor of the bog where you can't see it. I continued to look for Jutta's and watch this same behavior over and over again. I thought, how amazing nature can be!

Wishing I lived closer to this amazing bog, I drove home and thought about how I could collect more data on this butterfly from a distance. The next day, I created a “Jutta Arctic” data sheet that bog walkers could complete as they hiked along, and sent it to Big Bog State Park, Office Administrator Specialist, Dawn Jensen for distribution.

As exciting as that discovery was, I needed to move forward and locate the other 6 species that remained on my list. Unfortunately, I now had to cross off the Red-disked Alpine until next year. Its life cycle information told me it was now gone until spring of 2014 (5 species now left to hunt).

I began to concentrate my hunt on the Appalachian Brown. I was looking high and low, with dozens of pictures of the Eyed-brown when on July 3rd I came across a Scientist named Jim Hengeveld (Senior Lecturer In the Biology Dept. of Indiana University). He was also out observing, and gave me clues of where I could locate the Appalachian and a Tawny Crescent. He also informed me that he had only seen the Greenish-blue about 150 miles away on the north shores of Lake Superior. That prompted me to take the Greenish Blue off my list.

With great excitement I headed to Lake Bemidji State Park, where after 2 years I found an Appalachian Brown and was able to get some beautiful pictures of it. The next day I drove off to another location and searched extensively until I located 1 tattered Tawny Crescent.



Appalachian Brown (*Satyrodes appalachia*)
Lake Bemidji State Park, Minnesota.

With only 2 species left to locate, my hunt became intense on finding both the Dorcas and Gray Coppers. Day after day I drove to various locations seeking them out. I spent hours at Lake Bemidji State Park waiting for a hungry Dorcas Copper to arrive, on a marsh cinquefoil flower to nectar, with no luck. I decided to drive back to Big Bog State Park on July 15th with my son, Scott Barta, to search for that species. We walked slowly, looking for marsh cinquefoil and hoping to find a Dorcas Copper feeding. As the warm wind blew strong through the marshy grasses, Scott discovered an endless stream of cinquefoil flowers and the first of 4 Dorcas coppers attempting to eat. Finding them was awesome, but trying to take pictures of such a small butterfly, with the noon sun, the flowers below the grass line, and the wind blowing strong was quite a task. After 2 hours of attempts, I managed to get 1 good photo. It was quite a long, and exciting day.



Dorcas Copper (*Lycaena dorcas*).
Big Bog State Park, Beltrami Island State Forest.

Now the hunt is on for the last species, the "Gray Copper". As each day of July passed, I drove endlessly looking for it.

First seeking out its favored caterpillar food, curled dock, and then looking for the butterfly in that area. I discovered many locations of that plant, and even realized that the whole city of Cass Lake is blanketed with them. Jim was kind enough to e-mail me and give me the coordinates of a gray copper he had observed 150 miles west of my location. I was happy for him, but wanted to find one here in Cass or Beltrami County. I continued to search.

On July 23, while checking out some curled dock right here on Oak Point Rd. I didn't find the Gray Copper, but came upon a number of Great Spangled Fritillaries that were feeding on thistle. As I began to take photos of them, I discovered a beautiful tawny colored one. I knew immediately that it wasn't on my list, and got fantastic photos and video of three of them. After completing a photo session with them, I went to check my field guide for identification. Cool, I had just found some "Krautwurm's Fritillaries" (*Speyeria cybele*) (Holland) listed in Mogens Nielsen's book "Michigan butterflies and Skippers".

It was very frustrating not to find 3 of the 88 species on my list, especially the Gray Copper. Then I think to myself how much I accomplished while finding 86 of now 89 species in 3 summers. During the hunt, I created a 216



Krautwurm's Fritillaries (*Speyeria cybele krautwurmi*).

slide presentation of it, and then had the opportunity to present that at the state parks, and other organizations here in northern Minnesota. My son, Kevin Barta, created a beautiful "Butterflies of the North Woods" Poster, and post cards with the photos from the hunt. During the winter time I, designed an awesome butterfly sampler cross stitch pattern from my photos. I had the honor of collaborating with the United States Department of Agriculture, diligently coordinating an awesome butterfly photo checklist for the Chippewa National Forest visitors ("On the Hunt" Research locations). I was able to submit species sightings reports to the Lepidopterists' Society for publication in their 2011-2013 Season Summaries, and had 2 articles with my photos published in national magazines ("Majestic White Admirals", 2012, Fall edition of Butterfly Gardener, and "Rarely Seen Butterflies Visit the North Woods", News of the Lepidopterists Society, Volume 54, Number 4, Winter 2012 edition).

Correspondence with other Scientists was very educational, and I was thrilled to meet Larry Weber, the author of "Butterflies of the North Woods", and offered to have some of my photos added to the upcoming third edition of his book.

With this research now completed, I will be home more next summer enjoying the butterflies in my yard, while finishing my new presentation called, "Butterflies in My Garden". Best of all, I brought butterfly awareness, and knowledge to many people by sharing "On the Hunt" with the people of Northern Minnesota. They now realize what a treasure lies at their feet, and appreciate it more.

Now here at the conclusion of it all, I couldn't think of a better ending to my research than to be rewarded with the pleasure of finding some Krautwurm's Great Spangled Fritillaries, which changed my number of species to 89. What a great gift from nature for the grand finale. Truly, "On the Hunt" for the North Woods Butterflies was a Great Success!

Acknowledgements

The author thanks scientists, Larry Weber, John & Marlene Weber, Jim Hengeveld, and Les Ferge for continued encouragement and a wealth of knowledge and data pertinent to completing this hunt. Her sons, Brian, Kevin, and Scott Barta for computer, photographic, and hunting help! Her Life partner "Neil Peterson" for his endless patience during the hours, days, and months of the hunt, and her Mother, Shirley Snopek for her editing skills, Thanks Mom!

Literature Cited

Weber, Larry. 2006. *Butterflies of the North Woods* (Second Edition). Kollath + Stensaas Publishing (Duluth, Minnesota) 280 pages.

All photos were taken by Allison Snopek Barta (except the one at the top of the next column) in Cass or Beltrami Counties of Minnesota.



Allison Snopek Barta, "On the Hunt for the North Woods Butterflies" presentation



From the Editor's Desk

James K. Adams

Dear members,

Thank you (finally) for the responses to my request for input on potential new regular/irregular columns in the News. I still would like more responses from members who wouldn't mind contributing an article to one of the two following potential columns: 1) **"Initiating Experiences"** or **"In the beginning . . ."**, where contributed articles would be about formative early life experiences that motivated you toward Lepidoptera or nature in general, and 2) **"First Encounters"**, which would include articles about your first encounter (imagine that) with a long sought after elusive taxon. These are the two columns that seemed to generate the most interest. Please contact me by e-mail (jadams@daltonstate.edu) if you are willing to contribute. The nice thing about these topics is that EVERYONE has had these experiences which means EVERYONE is a potential contributor. And don't feel bashful -- even a simple little one pager is something I would really enjoy!

One other thing. Having been frustrated by a lack of response the first time I sent out my request for opinions on the new columns mentioned above, please **READ AND RESPOND** to Carol Butler's request for input on the Membership Committee suggestions (see page 173, this issue).

Dual host plant use by *Callophrys irus* (Godart) (Lycaenidae) larvae at a single site on the Maryland coastal plain

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Additional Key Words: frosted elfin; *Lupinus perennis*; *Baptisia tinctoria*; life history

Callophrys irus Godart (Lycaenidae) is rare throughout its range and listed as endangered in the state of Maryland (NatureServe 2013, Maryland NHP 2010), due in part to a scarcity of open, xeric habitats where its host plants can persist. Larvae are host plant specialists, restricted to feeding on one of two species, *Lupinus perennis* L. (Fabaceae) and *Baptisia tinctoria* (L.) Vent (Fabaceae) (Scott 1986, Allen 1997), throughout most of their range. At sites that harbor both plant species, *C. irus* larvae are reported to feed on one or the other but not both (Schweitzer 1992, NatureServe 2013). It has been suggested that *L. perennis*-feeding populations and *B. tinctoria*-feeding populations may represent distinct ecotypes (Schweitzer 1992); there is even speculation that they may not be conspecific (NatureServe 2013). Gatrell (1991) cited differences in the morphology of *L. perennis* and *B. tinctoria*-feeding adults, and differences among larvae have also been reported to a limited degree (NatureServe 2013). Differences in life history are also documented, with *L. perennis* feeders consuming flowers and pods (Schweitzer 1992, Swengel 1996, Pfitsch and Williams 2009, NatureServe 2013,) and *B. tinctoria* feeders consuming stems and leaves (Schweitzer 1992, Albanese 2007). A specialized feeding strategy involving stem girdling of *B. tinctoria* by *C. irus* has been documented by Albanese (2007). Further research is needed to determine whether differences in morphology and life history are a result of geographic separation or speciation.

In 2013 we documented use of both *L. perennis* and *B. tinctoria* by *C. irus* larvae at a site in Worcester County, Maryland on the Atlantic Coastal Plain east of the Chesapeake Bay. The site, hereafter referred to as the pine plantation, is underlain by relatively young (Tertiary and Quarternary) sediments of uniformly low relief (Schmidt 1993) and contains roughly 250 hectares planted to *Pinus taeda* L. (Pinaceae). Logging roads and harvest areas are the only openings in the dense pine canopy. Well-drained, sandy soils (Evesboro loamy sand, Typic Quartzipsamment; Soil Survey Staff 2011) provide habitat for *L. perennis*. *Callophrys irus* utilize the sandy roadsides where small patches of *L. perennis* persist, but their activity is concentrated in a 2.1 ha area that was clear-cut in 2004

and now harbors thousands of *L. perennis* stems. *Baptisia tinctoria* is also present, but no more than 25 stems have been encountered within the clearing (although a complete census has not been undertaken). To maintain suitable *C. irus* habitat, the clearing is currently managed to slow forest succession by mechanically clearing regenerating *P. taeda* and through the selective removal of hardwoods.

Callophrys irus has been surveyed at the pine plantation site annually since 2006. Females have been frequently observed ovipositing on *L. perennis* but never on *B. tinctoria*. During 2013 surveys, for example, we observed seven ovipositing females within a 3-day survey period, all of which oviposited on *L. perennis*. We surveyed for *C. irus* larvae in 2011-12, but not in 2013, by examining *L. perennis* stems for evidence of feeding damage to the seed pods. Larvae and evidence of feeding damage were present on *L. perennis* in both years. We have never targeted *B. tinctoria* for larval surveys because of the low density present in the clearing, and the few times we encountered it by chance in 2011-12 we found no larvae and no evidence of larval feeding damage.

On 18 June 2013, as part of a conservation seed collection effort at the pine plantation, we visited one of the logging roads that had not been monitored previously. Although *L. perennis* was not present, there were several *B. tinctoria* plants. We observed smaller, earlier-instar *C. irus* larvae feeding on *B. tinctoria* leaflets, petioles, and small stems, and late instar larvae girdling stems at or just above ground level as described by Albanese (2007). A census of the approximately 40 stems located along the 260 m stretch of road typically revealed one larva per occupied stem, although one stem hosted five earlier-instar larvae. Two of the stems had been killed presumably as a result of girdling, turning black and breaking at the girdle site. Alerted to the presence of *C. irus* larvae on *B. tinctoria*, we immediately examined the few *B. tinctoria* stems we could find in the 2.1 ha clearing. While we did not find larvae, two stems of 25 had been girdled; these two stems were separated by a distance of <6 cm.

On 26 July 2013 we completed a census of *B. tinctoria* encompassing 1.7 km of logging roads (including the stretch of road surveyed on 18 June 2013) at the pine plantation.

Although *C. irus* larvae were no longer feeding at this time, stem scarring as a result of girdling was still evident. Of the 100 *B. tinctoria* stems encountered, 73 had evidence of stem girdling. The roadside *B. tinctoria* was not near the roadside *L. perennis* (separated by 95 m or more), nor was it near the *L. perennis* in the clearing (separated by 200 m or more). These distances suggest that the presence of larvae feeding on the roadside *B. tinctoria* was the result of host plant selection by adult female butterflies.

We are aware of only one other *C. irus* site that supports both host plants on the lower Coastal Plain, located approximately 7 km north of the pine plantation site. This site (herein referred to as the north site) is linear and appears to be confined to an approximate 3.5 km length of sand road. There are two small clusters of *L. perennis* along the road shoulder at opposite ends of the road, and approximately 200-300 *B. tinctoria* stems scattered along the road shoulder between the two *L. perennis* clusters. *Callophrys irus* adults and larvae have been documented using both *L. perennis* clusters along the road several times in the last five years, but areas with *B. tinctoria* were not targeted for survey work until 2013. Surveys at the north site in 2013 revealed *C. irus* feeding damage on *L. perennis* but no apparent damage to *B. tinctoria*. We surveyed *B. tinctoria* on three occasions: 13 June (all plants surveyed), 19 June (50 plants surveyed) and 19 July (all plants surveyed).

The use of both *L. perennis* and *B. tinctoria* by *C. irus* at a single site has not been documented prior to our report as far as we are aware. One possible reason for this may be that at most sites where both host plants are present, one is clearly dominant over the other and the less abundant host is simply overlooked or under utilized by adult female butterflies, and/or overlooked by the observer. This line of reasoning is consistent with our observations to date, as *L. perennis* is clearly the dominant host at the pine plantation site, outnumbering *B. tinctoria* by a factor of at least ten to one.

It is also possible that a female from a nearby *B. tinctoria*-feeding population of *C. irus* dispersed to colonize the pine plantation site, ovipositing on *B. tinctoria* encountered along the road. This would assume that a *B. tinctoria*-feeding population of *C. irus* occurs somewhere in the vicinity of the pine plantation site, which cannot be confirmed. All of the known, extant *C. irus* populations on Maryland's lower Coastal Plain feed on *L. perennis*. There is, however, one historic (1980's) *C. irus* site record that occurred in association with *B. tinctoria*. Also, whereas *L. perennis* is a state-threatened species (Maryland NHP 2010) represented by a few small and isolated populations, *B. tinctoria* is relatively common on the Coastal Plain and could potentially support one or more additional *C. irus*

populations. The stray-female hypothesis could explain why *C. irus* larvae were observed using both host plants at the pine plantation site but not at the north site in 2013.

We will continue to monitor adult butterflies and larvae at both sites to assess whether *C. irus* consistently use both host plants at the pine plantation site, and to assess whether host plant use remains restricted to *L. perennis* at the north site. We also plan to survey areas with abundant *B. tinctoria* in 2014 in an effort to determine whether any *B. tinctoria*-feeding *C. irus* populations remain on Maryland's lower Coastal Plain.

Acknowledgements

We thank Matt Sampson (The Forestland Group, LLC) and Larry Walton (Vision Forestry, LLC) for allowing us to conduct our research at the pine plantation site, Paula Becker (Maryland Department of Natural Resources [DNR]) for assisting with the *B. tinctoria* census and Chris Frye, Wes Knapp and Jim McCann (all of Maryland DNR) for reviewing an earlier draft of this note. This project was funded in part by a State Wildlife Grant administered by the US Fish and Wildlife Service.

Literature Cited

- Albanese, G., M.W. Nelson & P.D. Vickery. 2007. Larval feeding behavior and ant association in frosted elfin, *Callophrys irus* (Lycaenidae). *J. Lepid. Soc.* 61:61-66.
- Allen, T.J. 1997. The Butterflies of West Virginia and their Caterpillars. University of Pittsburgh Press, Pittsburgh, PA. 388pp.
- Gatrelle, R. 1991. The taxonomic implications of the discovery of *Incisalia irus* in Florida. *News Lepid. Soc.* 4:57-58.
- Maryland Natural Heritage Program. 2010. Rare, Threatened and Endangered Plants of Maryland. April 2010 edition. Maryland Department of Natural Resources, Wildlife and Heritage Service, Annapolis, MD.
- NatureServe Explorer: An online encyclopedia of life [web application]. 2013. Version 4.6. Arlington, Virginia, USA: NatureServe. Available online at <http://www.natureserve.org/explorer>. Accessed July 2013.
- Pfitch, W.A., and E.H. Williams. 2009. Habitat restoration for lupine and specialist butterflies. *Restor. Ecol.* 17:226-233.
- Schmidt, M.F., Jr. 1993. Maryland's Geology. Tidewater Publishers, Centreville, MD.
- Schweitzer, D.F. 1992. Comments regarding *Erynnis persius* and *Incisalia irus*. *The Ohio Lepid.* 14:21-23.
- Scott, J.A. 1986. The Butterflies of North America: A Natural History and Field Guide. Stanford University Press, Stanford, CA. 585pp.
- Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/>. Accessed 3/17/2011.
- Swengel, A.B. 1996. Observations of *Incisalia irus* (Lepidoptera: Lycaenidae) in central Wisconsin 1988-1995. *The Great Lakes Entomol.* 29:47-62.



Digital Collecting:**... and now Panama -- part 1**

Kim Garwood

721 N Bentsen Palm Dr #40, Mission, TX 78572 kimgrwd@sbcglobal.netWestern and Central Panama

Panama can be a very interesting place to chase butterflies, as it is the transition point between North/Central and South America. I'm working on an app for butterflies of Panama, and have about 1,800 species for the country. One of the interesting things about Panama is it runs more west to east, rather than north to south as you would expect, and curves like a giant S on its side. There are actually places in Panama where you can see the sun rise over the Pacific and set over the Atlantic.

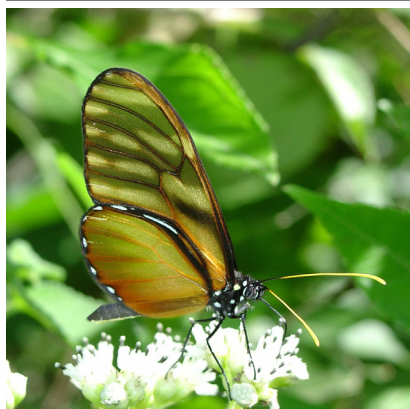
I've done a number of trips to Panama over the last 10 years or so. The last couple, in February 2012 and August 2011, were organized by Al Thurman from Phoenix. He was in the military and served in Panama back when the canal was still run by the US, and has been collecting there since 1974. Both of these trips were collecting trips, as Al has permits through ANAM, the university there, and does collecting for both the McGuire Center in Gainesville, FL and for Mississippi State University in Starkville, MS. He can be contacted at albert214@aol.com. Al is helped by John MacDonald, who has also been collecting in Panama since he lived there as a young man while his father worked on the canal, back in the 70's. John and his brother's great Panama collection is at Starkville, MS. I went as the only photographer, but they are open to other photographers coming along. Usually the other collectors on the trip have allowed me to go through their finds at night, which can be very helpful.

Panama has a strong dry season from about December to April or May, particularly in the western part or Pacific slope, when it can also be quite windy. This is the peak tourist season, because it is sunny and people in the northern latitudes want to escape the cold. This means more expensive airfares and more crowded hotels. The rains start in May, usually, and continue to get heavier into the fall months. It is below the hurricane belt, which is a good thing as you don't have to worry when you're there in our summer months. It can be somewhat drier during the Northern summer (July/August), and then the heavy rains are in October/November, where it can rain every day, all day. So you see different species in the dry Northern winter, which in Panama they tend to call *verano*

(summer), because it is sunny, from what you might see in the wet season (their 'winter'). They call it the green season, trying to attract more tourists in the 'off' season, and hotels can be cheaper and more available from May to November. More species fly in the wet season, so July/August/September can be good times to go. However Al thinks more *Lycaenidae* fly in the dry season, when there are more blooming plants. On the Atlantic or Caribbean slope, or the eastern Darien region, it is wetter all year round.

Western Panama, next to Costa Rica, contains the highest mountains in the country at over 2,000 meters. The Chiriqui area, on the Pacific side, includes several great places for montane or Andean butterflies. You can take a short flight to the town of David (Da-VEED), on the western/Pacific coast lowlands, or drive about 6-8 hours from Panama City up the Panamerican Highway. The western mountains are the Talamancas, also going in to Costa Rica, and have a number of endemic species found only in those mountains in the two countries.

From David you can drive up into the mountains to the popular ex-pat town of Boquete. There are many retirees from the US and Canada here, at 4,000-6,000' in the coffee growing region. This has been a favorite place to retire for the last decade or more, so it's not exactly undiscovered. There are a couple of small hotels and B&B's, and roads and trails to wander around. I've stayed with friends there a couple of times. This is a good area for *Dircenna* and other similar cloud forest *Ithomiinae*, many of which can be very difficult to sort out from a live photo. One morning (August 14, 2008) in my friend's driveway there was a fresh *Dircenna* on the asphalt, just waking up and pumping his wings. I think it was *D. klugii*, but we have also had *D. dero* and *D. olyras*, and probably *D. jemina*. We also had *Ithomia xenos* and *Eutresis hypereia*.



Nymphalidae (Ithomiinae):
Dircenna klugii (?)



Nymphalidae (Ithomiinae): *Dircenna dero euchytra*, *Dircenna olyras*, and *Ithomia xenos*

Over the years my friend Dan Wade, who lives in Boquete, has gotten some good shots of some more uncommon species on his 5 acres, like *Cyllopsis argentella* on the wall of his house, *Adelotypa glauca*, *Neographium calliste olbius* and a new record for Panama, *Ourocnemis archytas*. He's also shown me some good spots up on trails right outside of town, where both *Pereute cheops* and *Pereute charops*, along with several species of *Catasticta*, like to come to

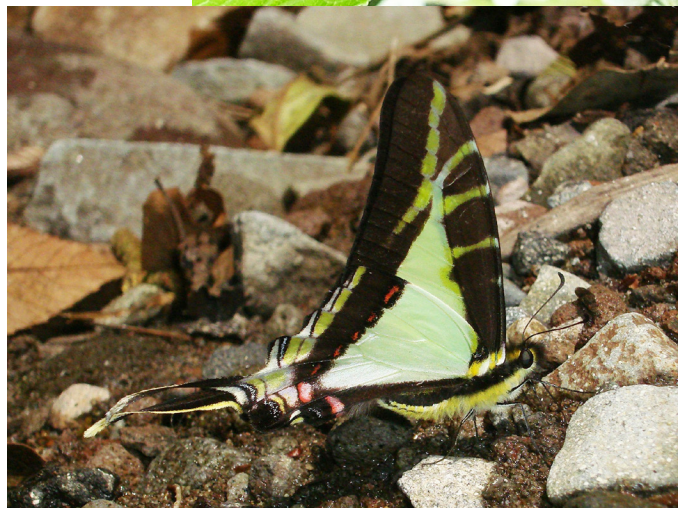
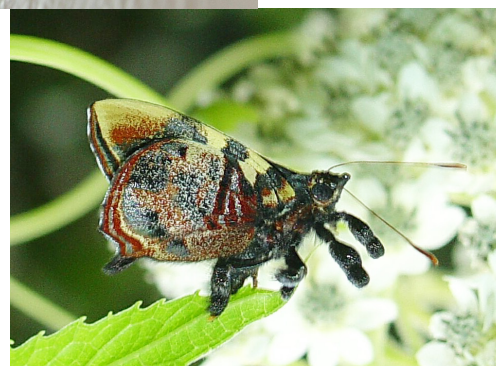


Nymphalidae
(Satyrinae):
Cyllopsis argentella
(Photo by Dan Wade)

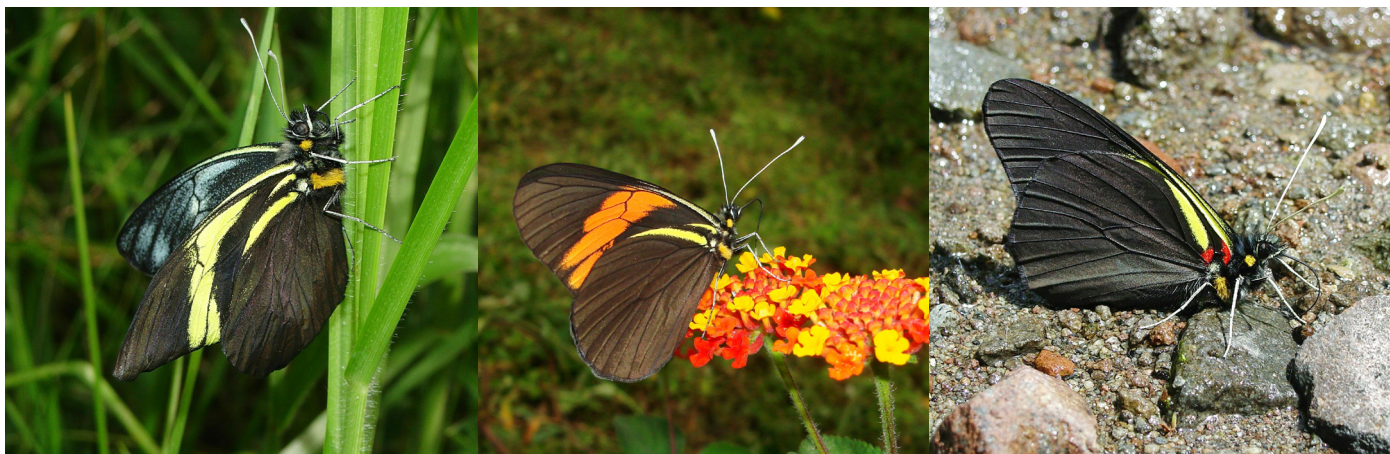


Riodinidae: *Adelotypa glauca*. Top: male; Bottom: female.
(Photos by Dan Wade)

Riodiniadae :
Ourocnemis
archytas
(Photo by Dan
Wade)



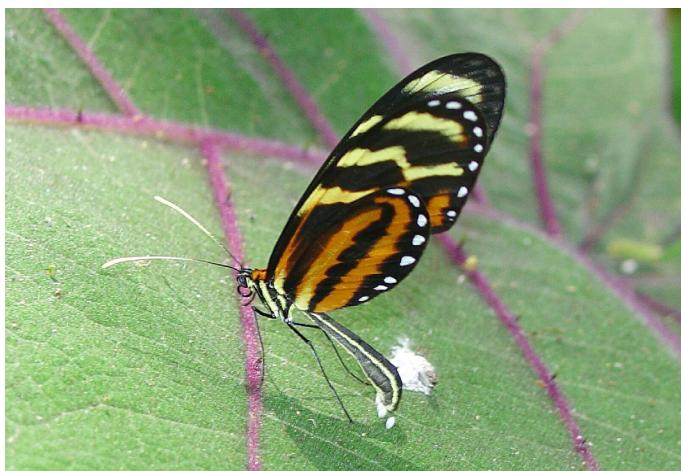
Papilionidae: *Neographium calliste olbius* (Photo by Dan Wade)



Pieridae: *Pereute charops* (male and female), and *Pereute cheops*

the streamside. He's seen *Mechanitis menapis saturata* breeding there, and has shots of a female laying eggs. He also got a nice shot of one of my favorites, hard to get close to, the different danaid *Anetia thirza insignis* or the Cloud-forest King. I've only seen this in the mountains of Oaxaca, Mexico, and that is a different subspecies without the white on the dorsal hindwing.

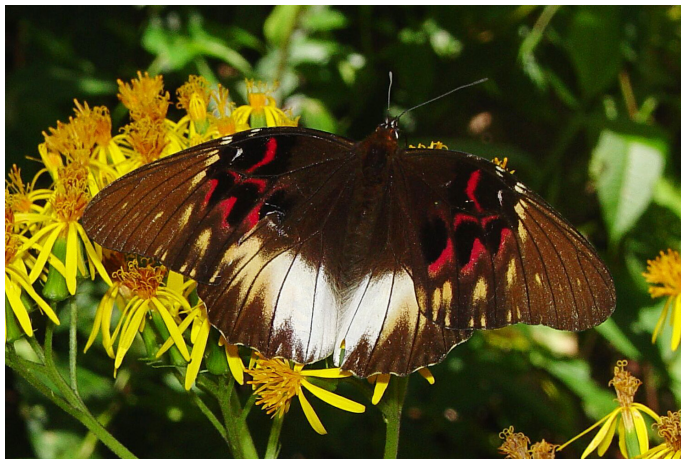
A good spot is on the way to Fortuna on the Atlantic coast, at what is called the Continental Divide trail, just south of Boquete. I've had good luck here with *Lycorea ilione albescens* and *Anthanassa crithona*, which also occurs in Boquete. There is a place to stay called Finca Suiza, which I'm not sure is still in business. It is halfway up the hill, on some very steep trails. Some collectors stayed there once that I know of, but there were problems, as the owners like to let out a pair of huge German shepherd guard dogs to roam the property at night. There was a slight conflict with the moth collectors. When I was there it wasn't a problem, but I didn't go outside of my room once I was in for the night. I did get some good shots of a spectacular firetip, *Creonpyge creon*.



Nymphalidae (Ithomiinae): *Mechanitis menapis saturata*, female laying eggs (Photo by Dan Wade)



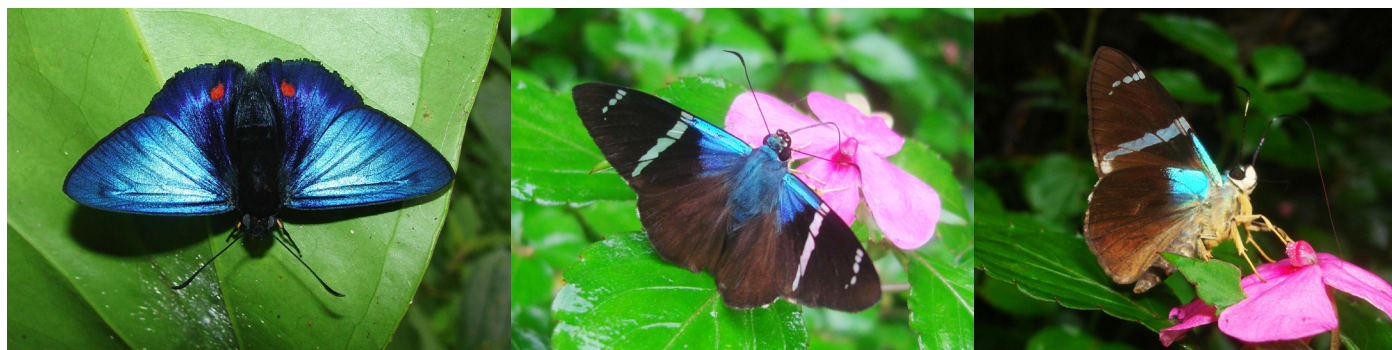
Nymphalidae (Danainae): *Lycorea ilione albescens*



Nymphalidae (Danainae): *Anetia thirza insignis* (Photo by Dan Wade)



Nymphalidae: *Anthanassa crithona*



Hesperiiidae: *Creonpyge creon*, *Celaenorrhinus aegiochus* (upperside and underside)

There is another road a bit north that goes to another town of Volcan Baru. A road was recently completed between Boquete and Volcan Baru, which makes it easier to get around and you don't have to go back down the mountain into David and to the main highway. I plan to spend some time on this road in April 2014, when I will be going back.

Al likes to stay at Finca Hartmann, at 1400-1500 meters, a family coffee farm outside of Volcan Baru. They have a large house you can rent, with about 5 or 6 bedrooms and 1 downstairs shared toilet and shower, plus a small 1 bedroom cabin with bath and kitchen. You have to bring all your own food and propane for cooking, and no electricity. Going with the collectors, they haul in generators and black lights for moths, so there is power for camera batteries and laptops to play with photos at night. This is not the sort of place you could just show up and get a room, but their

website says they rent out the 2 cabins (see www.finahartmann.com).

Finca Hartmann is a great place to stay. Lots of shade, grown coffee fields to wander around, truck paths all over the place, and patches of forest, so the diversity can be quite good. I always like being in good habitat, so you don't have to get in the car with the group and drive for an hour or so, then all come back together. We can spread out, so it is easy to get off by myself and hike around and photograph to my heart's content. Their land is right against Parque Internacional La Amistad, so you can hike a long way and not see anyone. This is the only place I have seen *Celaenorrhinus aegiochus*, a beautiful bright blue skipper that at first looks like an *Astraptes*. There were also some good cloud forest *Mesosemia*, both *M. asa* and *M. grandis*.



Riodinidae: *Mesosemia asa*; top: male, bottom: female
(Photos by Dan Wade)



Riodinidae: *Mesosemia grandis*; top: male, bottom: female



Nymphalidae: *Marpesia marcella* -- male, female and underside

From Finca Hartmann we sometimes drive over to Rio Candela, right next to the Costa Rican border. This is a bit higher than Finca Hartmann, and we find different species. In February 2011 there were lots of fresh *Marpesia marcella*, mostly males but a few females as well, with the white band on the forewing.

Another lodge is Mount Totumas, also in Chiriqui, about 7 km from the Costa Rican border and about 20 km from Volcan Baru. They provide meals, even though they are off the grid and a ways up a bad road. They have 24 hour electricity from their hydro plant, and are up in the cloud forest with quetzals and hummingbirds. Their porch overlooks the stream, and is a great spot for moths and beetles. They are very open to collecting (see www.mounttotumas.com). Last time Al and John were there they had several of the gold and silver *Chrysina* beetles, and a number of moth species they had never seen before. You should visit Mount Totumas more in the wet season, as it can be quite dry and windy from December to March. Both of these places require a 4 wheel drive to get in on their dirt road, but Mount Totumas can arrange to pick you up in David.

Heading back east (or south) in central Panama there is El Valle de Anton, commonly called El Valle, a pretty little town about two hours (100 km) from Panama City or 5 hours from David. Watch your speed, especially going through the little towns on the way, as there are many cops with radar on the Panamerican Highway, and they appear to be concentrating on gringos in rental cars, or maybe just folks in nicer cars. This is an upscale weekend retreat for wealthy people from Panama City, and there are a number of big homes and quite a few hotels. Try to avoid the weekends. I like to stay at Hotel Campestre (www.hotelcampestre.com). It is on the edge of town and has an 800m trail through the second growth forest on their land. You can hop the barbed wire fence and get into a big area that is more open with lots of flowers, where there were many crescents and *Parides*/Cattlehearts



Riodinidae: *Lyropteryx lyra cleadas*, female

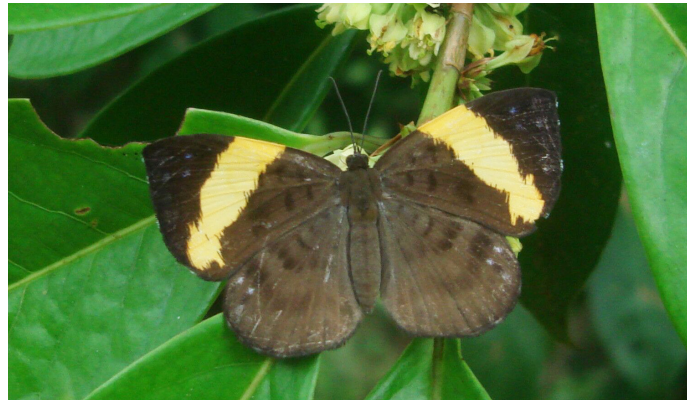
flying. When I was there in early August 2011 there was a great *Ithomiinae* lek right inside on this trail, and I had at least 16 species of clearwings posing on the leaves. John MacDonald tells me he had 21 species the previous year on August 13. In February, when it was dry, there were many fewer *Ithomiinae*, but Al caught a fabulous fresh female *Lyropteryx lyra*, first one I've ever seen.

Another good place from El Valle is to drive up the valley on the mesa or flat tableland where there is a huge chicken ranch. Across from the entrance to the chicken ranch are a long line of bushes, about 10-15' tall, that in August can be covered w/little white flowers that the *Ithomiinae* love. I have spent several days exploring these bushes and gotten many different species. Some common species are *Ithomia iphianassa panamensis*, *Ithomia heraldica* and *Mechanitis lysimnia macrinus*.



Nymphalidae (Ithomiinae): *Ithomia iphianassa panamensis*, *Ithomia heraldica*, and *Mechanitis lysimnia macrinus*

The road continues up into the forest for quite a ways. You cross streams a couple of times, and in the wet season this could be dicey, likely needing a 4 wheel drive. In February I drove with a friend up to the end of the road and we stayed at a new, simple lodge called Rio Indio Arriba, owned by the same man who owns another hotel in El Valle, Los Capitanes. It cost \$60/night including 3 meals. There was another group of collectors there when we showed up, and they had their sheets and black lights at several locations. There are all sorts of people living back up in the hills, with their dogs and chickens and kids, so we didn't find much undisturbed habitat, but we did get some nice shots of a female *Hypophylla martia* posing under a leaf.



Riodinidae: *Hypophylla martia*, female

That afternoon back at the lodge the guys found and killed a large fer-de-lance snake right by the cabins. As we had to go out to a shared toilet (and cold showers), I would prefer not to run into that at night!

Another trail in El Valle is up Cerro Gaital that can be quite productive. It is maybe a mile from the Hotel Campestre, easier if you have a car but you could walk from the hotel. I only spent one morning on this trail, but had some goodies. A cooperative *Ithomeis eulema*, one of the tigerwing *Riodinidae*, was posing on top of leaves and hopping from place to place. For the birders among us, I also had a close encounter with the almost mythical rufous-vented ground-cuckoo there. I was hanging around a flowering vine by myself, chasing *Ithomiinae* and waiting for them to land on the flowers, when suddenly there was a series of loud cranks and scolding noises from the underbrush. I stood silently, then out flew the ground-cuckoo. It flew up to a branch not very far from me and made quite a fuss. Perhaps I was near the nest? This is a large bird, similar to a road runner but bigger, and almost impossible to see unless you're at an ant swarm, and even then it is extremely rare. Too bad I couldn't get a picture.



Riodinidae: *Ithomeis eulema*

I'll continue in the next issue with more great places in Central Panama and into the Darien, the far eastern part of the country.

(All photos by Kim Garwood unless otherwise specified.)

The Marketplace

IMPORTANT NOTICE to ADVERTISERS: If the number following your ad is "553" then you must renew your ad before the next issue! **NEW:** Paid advertising; see the "NOTICE" and middle column, below.

NOTICE: Paid Commercial Advertising now in the News

As of this issue, any commercial advertisement in the News now requires a fee for space. Companies that are not affiliated with the Lep Soc can also purchase advertising space in the News. The cost to advertisers will be \$40.00 dollars per eighth page per issue, and we would like to limit advertisers to ads of a quarter page (for \$80.00) unless there are good reasons for a larger ad (a lot of text or multiple images, for instance). Advertisers should use Pay Pal (see Announcements) to send money to Kelly Richers BEFORE the ad will run.

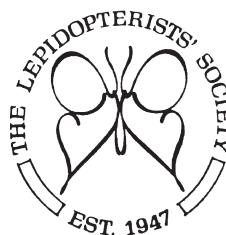
Books/Electronic Images

For Sale: Entomological books from personal library, mostly in excellent condition. Includes such titles as "Butterflies of Costa Rica -- 2 vols." by DeVries; "Pennington's Butterflies -- Africa" by Dickson and "Butterflies of Rhodesia" by Pinhey. Prices are negotiable. Write or e-mail for list. Alan J. Hanks, 34 Seaton Drive, Aurora, Ontario L4G 2K1, Canada or e-mail alan.hanks@sympatico.ca. 554

FOR SALE: Private collection of more than 500 books on BUTTERFLIES AND MOTHS, including many rare volumes. Several of the books are over 100 years old, and some have hand-colored lithograph illustrations. For a list of books, or if you have other questions, contact Frank Manning at frankmanning@gmail.com, 505-867-9088, or 505-270-7651(cell) or (home). 554

Specimens/Collections

FOR SALE: Important collection of European and Exotic butterflies gathered between 1950 - 1970 by a Belgian collector. More than 15,000 specimens including many rare ones, all of them labeled (family group or specimen) and presented in wooden boxes (large or small format) with special glass. Full list of specimens on request. Price: \$12,000. Contact: Magali Maus, mickgo533@msn.com 554



www.lepsoc.org

The aim of the Marketplace in the **News of the Lepidopterists' Society** is to be consistent with the goals of the Society: "to promote the science of lepidopterology...to facilitate the exchange of specimens and ideas by both the professional and the amateur in the field..." Therefore, the Editor will print notices which are deemed to meet the above criteria, without quoting prices, except for those of publications or lists.

Only members in good standing may place ads (but see top of next column). **All advertisements are accepted, in writing, for two (2) issues unless a single issue is specifically requested.**

All ads contain a code in the lower right corner (eg. 553, 554) which denotes the volume and number of the **News** in which the ad first appeared. **Renew it Now!**

Note: All advertisements must be renewed before the deadline of the third issue following initial placement to remain in place.

Starting with this issue of the News, the Lep Soc will charge commercial retailers for advertising space in the Marketplace at the rate of \$40.00/per eighth page/issue. (So a quarter page ad would be \$80.00, etc.) Members who are selling items as representatives of a company/corporation will be required to pay for space. Please limit ads to a quarter page. Payment can be made through Pay Pal (see Announcements) and must be made BEFORE the ad will be placed. Contact Kelly Richers at kerichers@wuesd.org for more info.

Advertisements should be under 100 words in length, or **they may be returned for editing**. Some leeway may be allowed at the editor's discretion. Ads for Lepidoptera or plants must include full latin binomials for all taxa listed in your advertisement.

The Lepidopterists' Society and the Editor take no responsibility whatsoever for the integrity and legality of any advertiser or advertisement. Disputes arising from such notices must be resolved by the parties involved, outside of the structure of The Lepidopterists' Society. Aggrieved mem-

bers may request information from the Secretary regarding steps which they may take in the event of alleged unsatisfactory business transactions. A member may be expelled from the Society, given adequate indication of dishonest activity.

Buyers, sellers, and traders are advised to contact state department of agriculture and/or ppqaphis, Hyattsville, Maryland, regarding US Department of Agriculture or other permits required for transport of live insects or plants. Buyers are responsible for being aware that many countries have laws restricting the possession, collection, import, and export of some insect and plant species. Plant Traders: Check with USDA and local agencies for permits to transport plants. Shipping of agricultural weeds across borders is often restricted.

No mention may be made in any advertisement in the **News** of any species on any federal threatened or endangered species list. For species listed under CITES, advertisers must provide a copy of the export permit from the country of origin to buyers. **Buyers must beware and be aware.**

Announcements: **Societas Europaea Lepidopterologica (SEL) invites members from the US**

Perhaps you remember the good times collecting and socializing with our European Lepidoptera leaning friends at the Denver and Gainesville meetings. Perhaps you want to stay in touch with European Lepidopterists. Perhaps you want to subscribe to *NOTA Lepidopterologica*, the journal of SEL. If any of these are true and you don't want to pay the heavy transaction fees to have your US dollars converted to EUROS, then Eric Metzler is here to help.

Eric H. Metzler is the SEL Treasurer's representative for the US. The dues, about \$50.00 US per year (depending on exchange rate) include the journal, *NOTA Lepidopterologica*, the quarterly journal devoted to the study of Lepidoptera and the Newsletter (about once per year). The journal is published in English. The Newsletter is multi-lingual.

The way it works is simple: Eric collects dues money from each US member (US dollars only), and he also collects a small fee to cover the costs of forwarding the electronic wire transfer to Europe. By sending all the money at once the transaction fee is spread out over several people – we each save. Eric does this once per year, shortly after the first of the year, for the group of US members, thereby keeping the transfer costs lower and establishing some regularity of annual dues payments.

If you are interested in becoming a member of SEL and receiving the Journal and Newsletter, please contact Eric at metzlere@msu.edu or Eric H. Metzler, P.O. Box 45, Alamogordo NM 88311-0045. Please make sure Eric has your mailing address and your email address. Do not send any money until Eric asks for money.

Note to Commercial Advertisers: PayPal is the easy way to send money to the Society

For those not familiar with PayPal, it is a convenient way to send money to anyone who has a PayPal account—even if the sender doesn't have an account, but does have a credit card. And it is available in many countries outside the U.S. The process is simple: sign on to www.PayPal.com, and navigate to "Send Money." To send money to The Lepidopterists' Society to purchase Society publications, t-shirts, and back issues, or to pay late fees, or to donate money or make any other kind of payment to the Society, use this recipient e-mail address: kerichers@wuesd.org; follow the instructions to complete the transaction, and be sure to enter information in the box provided to explain why the money is being sent to the Society. It's as simple as that—and be sure to let us know if you have any difficulties with the process.

International Conference on African Lepidoptera

Venue: Near Pretoria, South Africa, March 6-9, 2014

Come and share knowledge on African Lepidoptera, meet fellow researchers and enthusiasts, and enjoy the African bush. For more information go to: www.lepsoc.org.za or e-mail IntConference@lepsoc.org.za. Sponsored by the Lepidopterists' Society of Africa (for full color ad see Fall 2013 News of the Lep Soc, Vol. 55, No. 3: 100).

Call for Season Summary Records

If you have not gotten records of importance to your Zone Coordinators for the Season Summary, and still desire to do so, you must do so IMMEDIATELY. The deadline is/was **December 15, 2013**. For full instructions see Vol. 55: No. 3, page 101. Your Zone Coordinator's contact information is on the inside back cover of each issue of the News.

Book Reviews now only published in the News of the Lepidopterists' Society

Please send book reviews or new book releases to the editor of the News:

James K. Adams, School of Sciences and Math, Dalton State College, 650 College Drive, Dalton, GA 30720.
(706)272-4427; jadams@daltonstate.edu

Corrections/Addenda to articles in the Fall 2013 issue of the News (Vol. 55: #3)

20th Century Range Expansions in Massachusetts, pages 102 - 107, by Sharon Stichter

Professor John Snyder has very kindly located C. V. Blackburn's early specimen of *Pompeius verna* from Stoneham, Massachusetts, referred to in my article. The specimen is part of a small collection of Blackburn specimens at Furman University, and the date on it is June 30, 1929. This, therefore, seems to be the earliest extant eastern Massachusetts specimen, the Remingtons' finds in the 1930's being just a few years later. The general point that *P. verna* was not known from eastern Massachusetts until the early twentieth century is not affected. Many thanks to Professor Snyder for this information.

A Strange Pair, pages 116 - 117, by Steven Johnson and Nathan Boob

The emergence dates for the indicated hybrids between *Dryocampa rubicunda* and *Anisota senatoria* were in JULY and not June.

Continued on p. 172



63rd Annual Meeting of The Lepidopterists' Society

Co-hosted by the Utah Lepidopterists' Society
Utah Butterfly Field Trips

The Yarrow Resort Hotel and Conference Center, Park City, Utah
July 16-19, 2014

The Utah Lepidopterists' Society and Utah Butterfly Field Trips would like to invite you to attend the 63rd Annual Meeting of The Lepidopterists' Society--*Uniting Amateurs and Professionals*. The main meeting will take place July 16-19, 2014, at the Yarrow Resort Hotel and Conference Center located in historic Park City, Utah. Nestled at the heart of the Wasatch Mountains at an elevation of 6800', Park City is only minutes from outstanding butterfly and moth habitat. Park City also is home of the Sundance Film Festival and the alpine heart of the 2002 Winter Olympiad and is only 40 minutes from Salt Lake International Airport.



The schedule includes eleven field trips for butterfly and moth collectors and photographers that will take place both before and after the meeting. Because the number of participants associated with each field trip will be limited, it is recommended that you register early for field trips.

The Friday evening barbecue will be held in the atrium of the new Natural History Museum of Utah situated along the east side bench overlooking the Salt Lake Valley. The traditional

banquet will be held Saturday night at the Hotel. Student papers are scheduled for July 16 whereas the formal presentations and poster sessions are scheduled for July 17-19.

Reduced rates of \$89 per room will be available on a block of rooms set aside at the Yarrow Resort Hotel and Conference Center. **Make your hotel reservation early as our meeting runs concurrent with the 2014 Softball Triple Crown Tournament in Park City.** This cannot be overstated. Many hotel rooms will be booked in Park City for this weekend well in advance. Shuttle services will be available between Salt Lake International Airport and the hotel.

For questions regarding local arrangements or meeting events, please contact meeting chair Todd Stout at todd@raisingbutterflies.org or 801.558.6302.

Park City is a popular ski resort and tourist town located just south of I-80 and 23 miles east of Salt Lake City. The Yarrow Resort Hotel and Conference Center is 10 blocks from Park City's historic Main Street, where there are dozens of nice shopping stores and delightfully unique restaurants. Park City also is an ideal centralized location where not only are there butterflies on wing within minutes of your hotel room, but also many outstanding lepidoptera collecting and photography locations within an hour's drive of the hotel including Murdock Mountain, Lambs Canyon, Guardsman Pass, Millcreek Canyon, Mueller Park, and Jordanelle Wetlands.

Full information on the meeting is available at lepsoc2014.com.

Meeting Registration

Regular meeting registration is available online at lepsoc2014.com/Registration.html. This covers the regular meeting as well as registration to attend the Friday Evening barbecue, Saturday Evening banquet, and purchase any field trip box lunches as applicable. Regular meeting registration includes access to all paper sessions during the meeting, continental breakfast and afternoon snacks on Wednesday through Saturday, a meeting welcome packet including a T-shirt and id badge, and an opportunity to attend any or all of our 11 field trips. Payment is accepted through all major credit cards as well as PayPal. Early bird registration pricing (\$80 for students and \$115 for regular registration) ends June 1, 2014 where normal pricing kicks in at \$115 for students and \$150 regular price. Registrations close on June 22, 2014, so that we can get the printed program online by July 7, 2014.

If you would like to submit a paper, please submit abstracts to lepsoc2014.com/Abstract_Submission.html by June 22, 2014. You will also be provided a SkyDrive link to upload your full MS PowerPoint presentation for either MAC or PC platforms. We invite you to have this completed by July 7, 2014. (Again, if you wish to submit a paper, please submit abstracts by June 22, 2014; full presentations by July 7, 2014.)

We also invite you to participate in any or all of 11 field trips to be conducted both before and after the main meeting.

Field Trip Information: lepsoc2014.com/Field_Trip_Info.html

Field Trip Registration: lepsoc2014.com/Field_Trip_Registration.html

Hotel Registration

To make reservations, visit the LepSoc/Yarrow portal at <http://bit.ly/18k1ckk> or call 435.649.7000 and mention LepSoc contract pricing. Again, because of the concurrent 2014 Softball Triple Crown Tournament in Park City, we highly recommend you **MAKE YOUR RESERVATIONS EARLY**. The Yarrow Resort Hotel & Conference Center offers free WIFI.

We have reserved a block of 100 rooms per night at The Yarrow Resort Hotel and Conference Center for a contracted price of \$89 per night for Wednesday, July 16 through Saturday, July 19 (checking out Sunday, July 20.) We also have blocked out 80 rooms for Tuesday, July 15, and a handful of rooms for Sunday and Monday, July 13-14 for early arrivals, those attending field trips, and/or for those attending Tuesday's ECOM meeting. There are other hotels in the area, some of which are indicated below:

Hotel	Distance from The Yarrow Resort Hotel	Phone	Type	*	Breakfast
Hotel Park City	0.5 miles	435.200.2000	Double	\$130	Not incl.
Marriott Hotel Park City	0.5 miles	435.649.4900	Double	\$130	Not incl.
Sun Dial Lodge	4 miles	866.604.4171	Double	\$146	Not incl.
The Chateau at Silver Lake	3 miles	877.288.2978	Double	\$189	Not incl.
Canyons Grand Summit Resort	1 mile	866.604.4171	Double	\$188	Not incl.

* Subject to seasonal change at the discretion of the property. Call for current rates.

Travel. Salt Lake City International Airport is located five miles northwest of downtown Salt Lake City and 34 miles west of the Yarrow Resort Hotel and Conference Center in Park City. Salt Lake City International Airport is a major hub for Delta Airlines and operates from Terminal Two. All other airlines serving Salt Lake City use Terminal One.

Rental car companies are located on the lower level of the parking garage at Salt Lake City International Airport. Enterprise Rent a Car also has an office at The Yarrow Resort Hotel and Conference Center in Park City.

Shuttle service between the hotel and Salt Lake International Airport is available either through All Resort Express or All Mountain Transportation. We have negotiated a LepSoc group rate of \$35 (one way) with All Resort Express. Reservations can be made by calling 877.658.3999 or online at <http://bit.ly/ZG76dP>. All Mountain Transportation also provides shuttle services and can be reached at 435.657.9535 or visit www.allmountaintransportationpc.com.

Registration for the 63rd Annual Meeting of The Lepidopterists' Society

Co-hosted by the Utah Lepidopterists' Society
Utah Butterfly Field Trips

The Yarrow Resort Hotel Resort and Conference Center, Park City, Utah
July 16-19, 2014

Last name _____, First name and initial _____

Other registered family/group members _____

Street address or P. O. Box _____

City _____ State/province and postal code _____

Country _____ e-mail _____ Phone _____

Institution or affiliation for name tag: _____

Will you require free shuttle service to and from the Friday Evening Barbeque in Salt Lake City? _____

Special vegan or gluten free dietary requirements _____

What is your t-shirt size? Small _____ Medium _____ Large _____ XL _____ 2X _____ 3X _____

Registration fee includes snacks, breaks, program, t-shirt, and other registration materials.

1) Number of persons x \$115 (on or before June 1st) ; x \$150 (after June 1st)\$ _____

2) Number of students x \$80 (on or before June 1st); x \$115 (after June 1st).....\$ _____

3) Friday evening barbeque includes dinner (vegan and gluten free options): \$39 per person.....\$ _____

4) Annual banquet dinner with vegan and gluten free options: \$41 per person\$ _____

Reservations for banquet and barbecue due no later than July 1st.

How many box lunches will you need for field trips at \$8 per box lunch?\$ _____
(You will need to register for field trips online at either www.lepsoc.org or lepsoc2014.com)

Total enclosed.....\$ _____

Attending free reception at the Yarrow Resort Hotel and Conference Center on Tuesday, July 15th ? _____

It is recommended that you register online at lepsoc2014.com/Registration.html. We accept all major credit cards as well as PayPal. Online registration goes live October 15, 2013. You can also fill out this form and register through regular mail via check only. If you register through the mail, please fill out a **XEROX COPY** of this registration form and send check made payable to Tony Jones at 817 North Fox Hunter Drive, Farmington, Utah, 84025. If you plan on submitting a paper, those are only accepted through online submissions via lepsoc2014.com/Abstract_Submission.html. Cancellations after June 1st will be subject to a \$15 cancellation fee. NOTE: At the time of the conference, registration capacity may be limited to the formal sessions only. Event tickets, if any, may be limited. We cannot accept any registrations for the Friday Evening barbecue or Saturday Evening banquet after July 1, 2014.

Directions to the Yarrow Resort Hotel and Conference Center

- From Salt Lake International Airport: As you leave the airport heading south, immediately take I-80 east 4 miles to I-15 South. Take I-15 South 3.3 miles and reconnect with I-80 East. Take I-80 east out of the city and through Parley's Canyon 22 miles to Kimball Junction--exit 145 (UT SR 224). Take SR 224 six miles south to the Intersection of Park Ave. (SR 224) and Kearns Blvd (SR 248). The Yarrow Resort Hotel and Conference Center is located at the SE Corner of this intersection. For those with handhelds, you can copy and paste 1800 Park Avenue, Park City, Utah 84060 into the appropriate smart phone app.
- From Arizona or Southern California: Take I-15 north into Salt Lake City. Take I-80 east through Parley's Canyon 22 miles to Kimball Junction--exit 145 (UT SR 224). Take SR 224 6 miles to the Intersection of Park Ave. (SR 224) and Kearns Blvd. The Yarrow Resort Hotel and Conference Center is located at the SE Corner of this intersection.
- From Denver, Colorado: Two options include either taking I-25 north to Cheyenne, Wyoming, and then take the long drive along I-80 west throughout Southern Wyoming and into Utah. Continue west on I-80 and take Kimball Junction--exit 145 (UT SR 224) south. Drive 6 miles south to the Intersection of Park Ave. (SR 224) and Kearns Blvd. The Yarrow Resort Hotel and Conference Center is located at the SE Corner of this intersection. Or, take I-70 West to Hwy 40 north throughout Colorado and west through Vernal, Utah into Heber City. Continue north on Hwy 40 to Keeley Junction (Exit 4 to Park City/Kamas). Take UT SR 248 (Kearns Blvd.) west 3.6 miles to the Intersection of Park Ave. (SR 224) and Kearns Blvd. The Yarrow Resort Hotel and Conference Center is located just to your left before the intersection.

Campgrounds and RV Services

Park City RV Resort is located just minutes from the Yarrow Resort Hotel and Conference Center. It offers large RV facilities with full hookups as well as family campgrounds. For reservations, call 435.649.2535 or visit their website at <http://parkcityrvresort.com/reservations.htm> for more information. Jordanelle State Park (just north of Heber City) is 11 miles southeast of the hotel. It is easily accessible off US Hwy 40 and provides two campgrounds ranging from \$16 to \$20 per night. For reservations, call 800.322.3770 or visit their website at <http://bit.ly/1aSgqlo> for more information. Also, River's Edge at Deer park is located off US Hwy 40 and offers a variety of accommodations including family campsites, RV sites with full hookups, and a variety of cabins. For reservations, call 888.754.4049 or visit their website at <http://riversedgeatdeerpark.com/>.

Food. Lunches and evening meals are not included in the registration fee unless you register for the Friday evening barbeque and/or the Saturday evening banquet. During days where papers are provided, we will be providing a basic continental breakfast in the morning as well as a refresh consisting of cookies and soda in the afternoon. The Yarrow Resort Hotel and Conference Center also has an in-house restaurant (The Mountain Grill) which is open from 6AM to 2PM; and again from 4PM to 9PM. There is also a Fresh Market (formerly Albertson's) located on the east end of Yarrow's parking lot, which can come in handy prior to taking trips into the field.

Park City dining options are simply world renowned. There are over 100 restaurants, spanning everything from classic burgers and pizza to gourmet dishes and specialties. Many of these restaurants are located on Park City's historic Main Street. Visit <http://www.visitparkcity.com/visitors/restaurants/> for more information.



Photo courtesy of John Crossley

Parking. Parking at the Yarrow Resort Hotel and Conference Center is free.

Field Trip Information

We will be providing a total of 11 field trips--five for collectors, four for photographers and watchers, and 2 moth black lighting field trips. Photographers are invited to attend the collectors' field trip to Otter Creek/Koosharem Canyon. (Details below.)

Sunday July 13th:

Chipeta Lake: We will be providing a full day's collector's field trip and will meet in the lobby at 5:00 AM. (This is a three and a half hour trip to the High Uintas of Eastern Utah.) The trail that connects Chipeta Lake to Papoose Lake through Moccasin Lake involves about a one mile hike through increasing elevations through talus and meadows. Most of the butterflies found at Murdock Mountain can be found here. Additional butterflies not found at Murdock Mountain include the Colorado Alpine (*Erebia callias*), Melissa Arctic (*Oeneis melissa lucilla*), White-veined Arctic (*Oeneis taygete edwardsi*), Freija Fritillary (*Boloria freija browni*), and Mead's Sulphur (*Colias meadi meadi*).

Flights of these butterflies is a function of winter snow pack and snow melt. This can affect the flights of arctic alpine butterflies. We are leaving very early in the morning to get on the mountain by 9AM so as to try and avoid mid-day cloud cover which can be extremely prevalent in Utah's High Uintas.

Field Trip Leader: Wayne Whaley

Distance from Hotel: 169 miles

Dirt Road: We will be traveling on a paved highway for most of this trip. However, the last 26 miles (starting with Farm Creek Road) is a dirt road. This road is usually passable for sedans but, not always. It is advisable to carpool with someone with an SUV or truck.



Guardsman Pass/Wasatch State Park: We will be providing a watchers and photographers field trip and will meet in the lobby at 9AM. At an elevation of 9700', Guardsman Pass offers a breathtaking vista of Heber Valley, Snyderville Basin, and the Salt Lake Valley. Many species of larger fritillaries may be hilltopping as well as blues and hairstreaks.

Field Trip Leaders: Mike and Sharon Louret

Distance from Hotel: 10 miles

Road Quality: The road is paved from the Hotel all the way to Guardsman Pass and to Wasatch State Park.

Monday July 14th:

Murdock Mountain: We will be providing a collector's field trip and will meet in the lobby at 8AM. Murdock Mountain and Bald Mountain provide Arctic/Alpine habitat along Mirror Lake Highway and is less than an hour's drive from the hotel.

Butterflies that fly at these locations include the Magdalena Alpine (*Erebia magdalena*), Scudders' Sulphur (*Colias scudderi*), Purplish Fritillary (*Boloria chariclea*), Rockslide Checkerspot (*Chlosyne damoetas damoetas*), Grizzled Skipper (*Pyrgus centaureae loki*), Lustrous Copper (*Lycaena cupreus snowi*), and others. Availability of these butterflies, of course, is a function of winter snow pack and snow melt.

Field Trip Leader: Tony Jones

Distance from Hotel: 46 miles

Road Quality: There is a paved highway all the way to where you park to hike to Murdock Mountain.

Jordanelle Wetlands: We will be providing a watchers' and photographers' field trip and will meet in the lobby at 9AM. Jordanelle Dam is a man-made reservoir roughly 10 miles east of the hotel. Jordanelle Wetlands provides a boardwalk through a pristine area where one can find a handful of butterfly and dragonfly species. In addition to many species of *Speyeria*, skippers such as the European Skipper (*Thymelicus lineola*) and Garita Skipperling (*Oarisma garita*) can be found flying together.

Field Trip Leader: Sara Ryndfleiz

Distance from Hotel: 12 miles

Road Quality: Travel to this area is all paved; except you will be parking on a dirt road.

Guardsman Pass: We will be providing a moth blacklighting field trip and will meet in the lobby at 8PM. At an elevation of 9700', Guardsman Pass offers a breathtaking vista of Heber Valley, Snyderville Basin, and the Salt Lake Valley.

Field Trip Leader: John Richards

Distance from Hotel: 10 miles

Road Quality: The road is paved from the Hotel all the way to Guardsman Pass

Tuesday July 15th:

Bountiful Peak: We will be providing a collector's field trip and will meet in the lobby at 8AM. Bountiful Peak is located along Skyline Drive in Davis County roughly six miles from Bountiful City. The drive to Bountiful Peak from Bountiful City includes 12 miles of dirt road along Skyline Drive.

Bountiful Peak is an outstanding location to find several species of butterflies such as *Parnassius smintheus sayii* (Rocky Mountain Parnassian), *Callophrys affinis* (Western Green Hairstreak), several species of *Speyeria* including *S. hydaspe sakantula* as well as dayflying moths including *Hemileuca eglanderina* and *Hemileuca hera*. Bountiful Peak also is a good place to find larvae of *Papilio indra indra* (Indra Swallowtail).

Field Trip Leader: Ben Cieslak

Distance from Hotel: 63 miles

Road Quality: Twelve miles of dirt road travel is required out of Bountiful City. These roads are usually passable in a sedan; but, caution is advised.

Murdock Mountain/Bald Mountain: We will be providing a watchers' and photographers' field trip and will meet in the lobby at 8AM. Murdock Mountain and Bald Mountain

provide Arctic/Alpine habitat along Mirror Lake Highway and is less than an hour's drive from the hotel.

Butterflies that fly at these locations include the Magdalena Alpine (*Erebia magdalena*), Scudders' Sulphur (*Colias scudderi*), Purplish Fritillary (*Boloria chariclea*), Rockslide Checkerspot (*Chlosyne damoetas damoetas*), Grizzled Skipper (*Pyrgus centaureae loki*), Lustrous Copper (*Lycaena cupreus snowi*), and others. Availability of these butterflies, of course, is a function of winter snow pack and snow melt.

Field Trip Leader: Tony Jones

Distance from Hotel: 46 miles

Road Quality: There is a paved highway all the way to where you park to hike to Murdock Mountain.

Wednesday, July 16th:

Payson Canyon: We will be providing a moth blacklighting field trip and will meet in the lobby at 6PM. Field Trip Leader, Bob Mower, will then meet the group at McDonalds in Payson at 8PM where we will proceed up Payson Canyon.

Field Trip Leader: Bob Mower

Distance from Hotel: 75 miles

Road Quality: Travel to this area is all paved.

Sunday July 20th:

Otter Creek/Koosharem Canyon: We will be providing a full day's collector's field trip and will meet in the lobby at 5:30AM. Otter Creek is a unique wetland habitat that draws wetland species such as the Sonora Skipper (*Polites sonora utahensis*), Bronze Copper (*Lycaena hyllus*), Nokomis Fritillary (*Speyeria nokomis apacheana*), Idaho Skipper (*Hesperia coloradensis idaho*) and an extremely abundant local segregate of the Large Wood Nymph (*Cercyonis pegala*).

Nine miles south of Otter Creek, we will also visit Koosharem Canyon. This canyon provides a unique mix of satyrids include Mead's Wood Nymph (*Cercyonis meadi meadi*), Small Wood Nymph (*Cercyonis oetus charon*), Canyonland Satyr (*Cyllopsis pertepida dorothea*), Pine White (*Neophasia menapia menapia*), behr's Hairstreak (*Satyrrium behri behri*), and others.

Field Trip Leader: Ed Gage

Distance from Hotel: 211 miles

Road Quality: There is a paved highway all the way to Otter Creek. We will be traveling four miles of dirt road to get to Koosharem Canyon.



*Note: Photographers are welcome to join us on this trip understanding that collectors may be within shouting distance. (Otter Creek and Koosharem Canyon are very wide open areas.)

Albion Basin: We will be providing a watchers' and photographers' field trip and will meet in the lobby at 8AM. Albion Basin is located adjacent to Alta Ski Resort at an altitude of 9400' in Little Cottonwood Canyon at an elevation of the Salt Lake Valley. Butterflies you can find there include the Mormon Fritillary (*Speyeria mormonia eurynome*), Boisduval's Blue (*Plebejus icarioides*), Zerene Fritillary (*Speyeria zerene platina*), the Great Basin Fritillary (*Speyeria egleis utahensis*), Northwestern Fritillary (*Speyeria hesperis wasatchia*), Callippe Fritillary (*Speyeria callippe harmonia*), Small Wood Nymph (*Cercyonis oetus charon*), and others.

Field Trip Leader: John Richards

Distance from Hotel: 43 miles

Road Quality: The highways to Albion Basin are paved. (This is a gorgeous area!)

Monday July 21st:

Deep Creek Canyon: We will be providing a collectors' field trip to Deep Creek Canyon, Juab County. This field trip encourages those who attended the Sunday field trip to Otter Creek/Koosharem Canyon to actually stay in Nephi or Levan Sunday night. Nephi is located along I-15; 80 miles south of Salt Lake City and 14 miles north of Deep Creek Canyon. (Lodging options in Nephi are inexpensive; but limited. Information can be found at <http://bit.ly/15PSdbs>.) If you want to camp out near Levan, check out Chicken Creek Campground at <http://bit.ly/14dMsWZ>.

Deep Creek Canyon is 3.1 road miles south of Levan along the east side of Utah Hwy 28. This canyon provides a similar mix of the butterflies from Millcreek Canyon; but with much greater numbers. During the summers of 2012 and 2013, Deep Creek Canyon experienced very large flights of the Colorado Hairstreak (*Hypaurotis crysalus citima*), Great Basin Fritillary (*Speyeria egleis utahensis*), Northwestern Fritillary (*Speyeria hesperis wasatchia*), Zerene Fritillary (*Speyeria zerene platina*), Coronis Fritillary (*Speyeria coronis snyderi*), Callippe Fritillary (*Speyeria callippe harmonia*), Great Spangled fritillary (*Speyeria cybele letona*), and Weidemeyer's Admiral (*Limenitis weidemeyeri latifascia*). Wyoming Satyrs (*Neominois wyomingo*) have also been spotted in the canyon in late July.

We will meet in the lobby of Burger King in Nephi at 8:00 A.M. This is located about 1 block south of I-15 Exit 222 (Nephi S. Main Street.) Box lunches will not be provided for this field trip; so it is advised that you tank up at Burger King and/or the Texaco station next door before enjoying the canyon.

Field Trip Leader: Kilian Roever

Distance from Hotel: 120 miles

Road Quality: All roads are paved except the canyon road itself which extends a little over four miles until it dead ends. Please be careful as you travel this dirt road because one small section has incurred some erosion where travel with care is advised.

These trips will be on a first-come basis, and depending on attendance, we cannot guarantee that there will sufficient transportation for everyone. Box lunches will be available for the day trips at the cost of \$8.

Awards and Banquet Door Prizes. The banquet is one of the highlights of the Annual Meeting. The society has a number of special awards which will be given that evening. In addition, if you would like to donate door prizes, please coordinate with Charlie Covell at ccovell@flmnh.ufl.edu.

Local Attractions. Park City is a major hub of local attractions. Park City provides many spas, fly-fishing outfitters, shopping and galleries, arts and music festivals, world class golf courses, as well as 400 miles of hiking trails. Park City also provides a summertime version of the bobsled at Utah Olympic Park. For more information on all of the local activities, visit <http://www.visitparkcity.com/things-to-do/>.

Collection Resources. You are also invited to see the insect collections at the Natural History Museum of Utah and/or the BYU Monte L. Bean Life Science Museum. Please coordinate your visit through Christy Bills (NHMU) at cbills@nhmu.utah.edu or with Shawn Clark (BYU) at (801) 422-3815. Shawn's email is shawn_clark@byu.edu.

Vendors Welcome! If you would like to be a sponsor of the meeting and/or would like exhibitor space in our vendor area, please contact Vernon Evans at phencer911@msn.com for participation information.

More Announcements:

Continued from p. 165

Membership Committee Report -- Chair, Carol A. Butler

I am pleased that at least one person actually read my comments in the last issue of the News and submitted a great idea. Maine member Bob Gobeil is sponsoring at least one college student, paying their Lepsoc dues (\$20.00 is the rate for a full-time student), and mentoring them--taking them out on field trips, keeping in touch, etc. If you are a faculty member or otherwise in a position to identify an interested student, how about giving this a try?

In my last column I asked for email links to your local organizations so we can make sure they are included in our announcements for upcoming meetings and calls for membership in Lepsoc, but so far *nobody* has sent me a link. I know lots of you are active in your local bug groups, so please send me email addresses to add to my list. I promise we won't bug them unreasonably (sorry, I couldn't help it).

Everybody agrees that the Outernet project was a good idea- just ask enthusiast Todd Stout who has it up and running in Utah. Really, ask him. It would be great if more members made the effort to start the project in their area. Please follow up with youngsters (and their parents) who show an interest in leps. Take them out in the field with you. Maybe they can help us figure out what else we can do to get them involved with our organization.

Page charges for journal submissions will increase in January, 2014, but members get a 50-75% discount. I like the idea of giving a free one-year membership to non-

members who have an article accepted for publication in 2014- *after* they have paid the non-member fee. These are people we want to keep involved in the Society, and they might be encouraged to renew so they'd get the member rate for page charges on future articles. I would see that as worthwhile, wouldn't you?

On 4 October Julian Donahue mailed 78 reminder notices to members who did not renew for 2013, offering to send them the remaining 2013 issues of the News and Journal free if they rejoin for 2014. I plan to follow up to see how many actually respond, and perhaps we can send a brief questionnaire to some people who didn't renew to try and learn why they left us. *If you know someone who didn't renew, please make contact with them and ask them why they left- and let us know. And, of course, encourage them to reconsider.* (Thanks to Dave Wikle for this excellent suggestion.)

Please email me with your ideas and comments- I welcome them.

Carol A. Butler, cabutler1@verizon.net

Dues Notices for 2014 are in the Mail

Dues notices and ballots for 2014 were mailed on 5 November 2013. Ballots must be received by 15 January 2014 in order to be counted, and dues must be received no later than 15 February if you wish to receive all 2014 publications. Membership renewals received after 15 February must include the Late Fee if you want to receive any issues you missed by renewing late. (The Late Fee, \$10 in North America, \$15 elsewhere, covers some of the high cost of mailing publications at the First Class or Media Mail rates, which are more expensive than the Periodicals Rate we use for bulk mailings.)



A bilateral gynandromorph of *Parasa chloris* (Herrich-Schäffer) (Limacodidae) from Kentucky

Charles V. Covell, Jr.

McGuire Center for Lepidoptera and Biodiversity, Florida Museum of Natural History,
University of Florida, Gainesville, FL 32611 ccovell@flmnh.ufl.edu

When the large collection of Lepidoptera of the late Siegfried Scholz of Valley Station, Jefferson Co., Kentucky, came to the University of Louisville Collection, I noticed a specimen of the smaller *Parasa*, *P. chloris* (Herrich-Schäffer) with the left wings smaller than those on the right (Fig. 1), and their shapes differing in accordance with the two sexes. A closer inspection revealed a striking antennal difference as well: the left antenna was bipectinate while the right was simple (Fig. 2). The original label on the specimen reads "Louisville, Ky.", but the moth was actually collected in Waverly Park, Valley Station, Jefferson County, Kentucky, on "9-5-1974". I dissected the genitalia (C.V. Covell Genitalia preparation #1096, March 1981) and discovered partial female structures in the area to the right of the uncus of the male: the malformed papilla anales (Fig. 3). Fig. 4 shows a normal male genitalia (without aedeagus) for comparison. Attached to this are remnants of the ductus

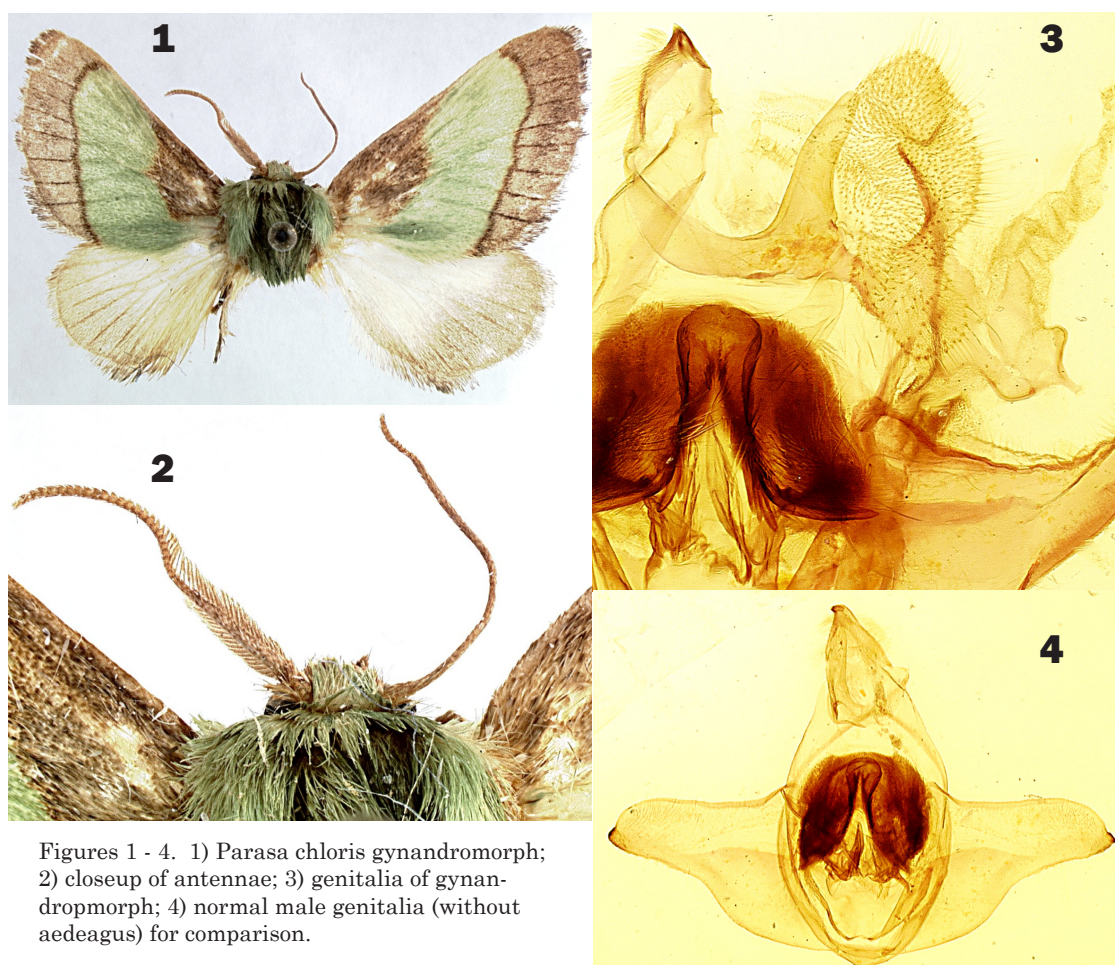
bursae, and part of the corpus bursae are represented by the membranous parts shown to the right. The careful analyses of other gynandromorphs more recently discovered by Davis (1994), Hodges (2007), Sihvonen (2001) and others have elucidated a variety of expression of male and female genitalic features. The Kentucky genitalia seem to show less female structure than the figures presented in the other papers.

The specimen is in the University of Kentucky insect collection, Department of Entomology, University of Kentucky, Lexington, KY. (which now includes the former University of Louisville Insect Collection).

I thank John Heppner of the McGuire Center for making the photographs, and Leroy Koehn for shipping the specimen and slides to me from the University of Kentucky on loan.

Literature Cited

- Davis, D.R. 1994. A bilateral gynandromorphic *Harmaclona tephrantha* from Indonesia (Lepidoptera: Tineidae). *Tropical Lepidoptera* 5: 117 - 122.
- Hodges, E. R. S. 2007. A remarkable genitalic gynandromorph of *Acleris celiana* (Robinson) (Lepidoptera: Tortricidae: Tortricini) from Texas. *News Lepid. Soc.* 49 (3): 79, 85.
- Sihvonen, P. 2001. Two abnormal Lepidoptera specimens: gynandromorphic *Laothoe populi* (Sphingidae) and teratological *Amphipoea fucosa* (Noctuidae). *Baptria* 26 (4): 133 - 136.



Figures 1 - 4. 1) *Parasa chloris* gynandromorph; 2) closeup of antennae; 3) genitalia of gynandromorph; 4) normal male genitalia (without aedeagus) for comparison.

Membership Updates...

Julian Donahue

Includes ALL CHANGES received by 5 November 2013

"Lost" Members (publications returned: "temporarily away," "moved," "left no address," or "addressee unknown"):

Homziak, Nicholas (Albuquerque, New Mexico)

New and Reinstated Members: members who have joined/renewed/been found/or rescinded their request to be omitted since publication of the 2012 Membership Directory (not included in the 2008 Membership Directory; all in U.S.A. unless noted otherwise)

Angel, Leslie M. (Ms.): [address omitted on request]

Arndt, Janice: 901 Highway 3A, Nelson, B.C. V1L 6J5, Canada.

Bernstein, William: 1011 South Valentia Street, Unit 34, Denver, CO 80247-6814.

Betros, Betsy (Ms.): 27622 West 85th Terrace, Lenexa, KS 66227-3531.

Bridgehouse, Derek W.: [address omitted on request]

Bryant, Anna: 3265 C Street, Apt. 104. San Diego, CA 92102-2484.

Diniz, Ivone Rezende (Mrs.): Núcleo Rural Lago Oeste, Rua 12, Chacara 290, Sobradinho, Brasília, D.F. 73100-360, Brazil.

Dubail, Didier (Mr.): 78 rue Mahiermont, Genval, Brabant Wallon 1332, Belgium.

Duchai, Dale M. (Ms.): 47 Orchardside Drive, Cranbury, NJ 08512-5400.

Fahlenbock, Terry (Mr.): 1047 Nisake Trail, Minden, Ontario K0M 2K0, Canada.

Fenwick, Sara (Ms.): [address omitted on request]

Forbes, Scott: 33 Hope Terrace, Edinburgh, Lothian EH9 4P, United Kingdom.

Francini, Ronaldo Bastos (Ph.D.): Av. Marechal Floriano Peixoto 248, Apto. 12, Santos, São Paulo 11060-302, Brazil.

Kohl, Craig R.: P.O. Box 24, Hiawatha, IA 52233-0024.

Kryglik, Melvin T.: 5332 King Avenue, Rosedale, MD 21237-4004.

Mascuch, Samantha (Ms.): 407 Bird Rock Avenue, Apt. 2F, La Jolla, CA 92037-7559.

Neck, Raymond W. (Ph.D.): 5603 Effingham Drive, Houston, TX 77035-4678.

Nichols, Xander: 2965 West Bunkum Road, Rensselaer, IN 47978-8881.

Nix, Tom: 49 German Cross Road, Ithaca, NY 14850-6027.

Perry, Marlo (Mrs.): 1003 Clement Street, Joliet, IL 60435-4521.

Renfro, Cristyn (Mrs.): 663 Gentry Lane, Lexington, KY 40509-9769.

Ries, Leslie (Ph.D.): Department of Biology, University of Maryland, College Park, MD 20741-0001.

Ritland, David B. (Ph.D.): Department of Biology, Erskine College, P.O. Box 338, Due West, SC 29639-0338.

Romero, Margaurete (Ms.): 4314 Northpark Drive, Tampa, FL 33624-3413.

Sasse, Donald C.: 2311 Pine Street, Billings, MT 59101-0532.

Siewert, Ricardo Russo: [address omitted on request]

St. Laurent, Ryan: 69 Meadow Sweet Trail, Saunderson, RI 02874-2340.

Address Changes (all U.S.A. unless noted otherwise)

Altstadt, Daphne: 1296 Willow Avenue, Louisville, KY 40204-2119.

Cummins, Heather: 5532 31st Avenue South, Minneapolis, MN 55417-2068.

Dunford, James C. (Dr.): 924 Elliott Road, Virginia Beach, VA 23464-1877.

Hageman, Chuck: 3356 Yorktown Drive, Yuba City, CA 95993-8974.

Nielsen, Mogens C.: 1791 South Mackinaw Road, Kawkawlin, MI 48631-9752.

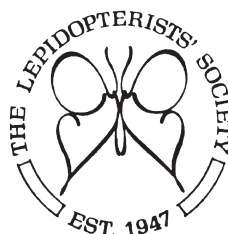
Nuelle, Robert J., Jr.: 20322 Ray Falls Drive, Tomball, TX 77375-2847.

Szafranec, Ashley M.: P.O. Box 526, Meadow Lands, PA 15347-0526.

Metamorphosis

Julian Donahue

Thomas D. Eichlin, Ph.D., of Gilbert, Arizona, on 23 September 2013 at the age of 75. Tom had retired from the Insect Taxonomy Laboratory of the California Department of Food and Agriculture, Sacramento, California, where he was a specialist on the clearwing moth family Sesiidae. He authored or co-authored many major works on the North American sesiids, notably Fascicle 5.1 of *The Moths of America North of Mexico* (1988), and at the time of his death was working on the sesiids of Mexico. Tom's wife Kathryn predeceased him. He had been a member of the Society since 1968, and was Editor of the *Journal of The Lepidopterists' Society* from 1981 to 1985.



www.lepsoc.org

2013 Karl Jordan Medal Award Winner James S. Miller

Jacqueline Y. Miller

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President Andrew Warren presented the Karl Jordan Medal to James S. Miller during the banquet at the 62nd Annual Meeting of the Lepidopterists' Society held at the McGuire Center for Lepidoptera and Biodiversity and the University of Florida, in Gainesville, Florida. This was soon followed by his presentation on, "Species Discovery: From the Andes of Peru to Your Own Backyard." This was an overview of species discovered in the tropics in addition to some uncommon species found locally in Florida.

James S. Miller was born on January 24, 1953, in Boston, Massachusetts. He received a Bachelor of Arts (Biology) from Hampshire College, Amherst, Massachusetts, in 1976, and his Ph. D. (Entomology) from Cornell University in 1986, for his research on the phylogenetic systematics and chemical constraints on hostplant associations in the Papilioninae (Lepidoptera: Papilionidae).

Dr. Miller's service to the scientific community is highly commendable. He has served on a number of editorial boards over the years, including the New York Entomological Society, *Cladistics* and most recently on the *Journal of Insect Science*. He has served as a Lecturer and Adjunct Professor, Department of Entomology at Cornell University (1995-1999), Associate Curator, Department of Entomology, American Museum of Natural History, New York (1995-1999), and currently serves as Research Associate, in the Department of Entomology, National Museum of Natural History, Smithsonian Institution, Washington, D. C., Research Associate, Division of Insects, Field Museum of Natural History, Chicago, Illinois, and Research Associate Professor, Biology Department, University of Nevada, Reno, Nevada. Since 2009, Dr. Miller has served as the Co-founder and Head of Curriculum of the very popular Lepidoptera course at the Southwestern Research Station, Portal, Arizona. In 2013, he co-founded, and is the Head of Curriculum for, the Neotropical Lepidoptera Course at the Jenaro Herrera Research Center, Loreto, Peru, with a superlative list of colleagues to assist. In addition to being an excellent scientific illustrator, he is also an accomplished musician on electric guitar, especially on traditional American music, including country and folk.

Author and coauthor of more than 22 research publications many of which are long revisionary treatments, Dr. Miller has contributed markedly to our knowledge of the life history, biology, morphology, systematics, phylogeny, and diversity of Lepidoptera. Based on a thorough cladistic



Dr. James S. Miller

analyses of relationships among the genera in the subfamily Papilioninae, he recognized four tribes and determined that many of the higher taxonomic categories accepted by previous authors were not monophyletic. His excellent in depth morphological phylogenetic study has served as the standard for a number of the higher classification and revisionary studies which have followed.

Since 1991, Dr. Miller has gradually worked on various research aspects of the Notodontidae from the cladistics and adult morphology (1991), pupal morphology and subfamily classification (1992), and publications on the *Josiini* (1994, 1996, 1997). Some of these have covered a broad spectrum from systematics and phylogenetic treatments including descriptions of new taxa (1996, 1997, 2008, 2009, 2011) to pondering the ecological characters and mimicry complexes (1995, 1996). Dr. Miller's magnificent two volume publication on the *Dioptinae* (tribes *Dioptini* and *Josiini*) in 2009 is the culmination of a long term study on this subfamily examining more than 17,000 specimens in 38 worldwide collections and defining 3,500 species based on 115 exemplar species with 305 characters and supplemented with life history studies in the tropics and elsewhere. It is superbly illustrated and includes tribal, generic and specific keys, diagnosis and descriptions (including 64 new species). *Dioptine* morphology is presented in remarkable detail with pertinent discussions, and geographic distributions. It is for this impressive

Continued on p. 177

Dinumma deponens, Walker 1858 (Erebidae) is here to stay

¹James K. Adams, ²Peter Van Zandt, and ³Tom Neal

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On June 15, 2012, a fresh female specimen of *Dinumma deponens* Walker, 1858 was taken at gas station lights (34.893N, 80.26W) in Morganton, Fannin Co., in north Georgia by Paul Dennehy and James Adams (see the Fall 2012 News of the Lepidopterists' Society, Vol. 54: No. 3, page 104). This location is quite rural, along a state highway about 100 miles north of Atlanta. The specimen was identified (by photograph) by Alberto Zilli. This was the first record of the species from the United States. The species' known range (prior to this record) is "from India across E. China to Japan, Korea and to Thailand" (Alberto Zilli, pers. comm.), though not Borneo. It was not at all clear why an introduced specimen of this moth would show up at such an out of the way place half way around the world.

A little searching on the internet revealed that the larval food plants of *Dinumma* Walker, and the species *Dinumma deponens*, are members of the genus *Albizia* Durazz. (Mimosa). Mimosa is extensively planted and naturalized throughout north Georgia and indeed much of the southeastern U.S., so the presence of the moth could indicate an established population, though at the time it was impossible to be sure.

The record was reported to Don Lafontaine and Christian Schmidt at the Canadian National Collection, and they included it in the species list for additions and corrections to the check list of North American Noctuoidea in Zookeys (2013), mainly based on the assumption that if it did indeed feed on *Albizia*, then the isolated specimen was probably a representative of an established population yet to be discovered.

In 2013, there have been several new records of *D. deponens* from several states in the southeastern U.S. (Fig. 1), indicating that the species is clearly established in the U.S. These additional records are as follows:

ALABAMA: Seven specimens from Jefferson Co., collected by Peter Van Zandt all from mixed oak hickory forest near disturbed, urban habitats: three specimens from Ruffner (Irondale, 33.514N, 86.859W) -- June 11 (female), July 16 (male, Fig. 2), and July 19 (male); two specimens from the Birmingham-Southern College campus (33.514N, 86.859W) -- July 16 (male) and August 27 (male); and two male specimens from the Turkey Creek Nature Preserve (33.7N, 86.705W), both on September 27. There was an additional specimen photographed in southeastern Lee Co., at Smiths Station, just to the northwest of Columbus, Georgia by Robb Herrington on September 23.

NORTH CAROLINA: Three male specimens from a rural area in Cabarrus Co., around 2.6 miles ESE from the center of Concord (35.395N, 80.356W), collected by Darryl Willis -- July 20, July 26 and August 13. An additional specimen was observed at bait on July 23 but was not collected.

SOUTH CAROLINA: One female specimen from Greenville Co., in eastern Greenville on the SW quadrant of the intersection of Pleasantburg Dr. and Keith Dr. (34.848N, 82.362W) on vegetation by a UV bucket trap, collected by Tom Neal on July 14.

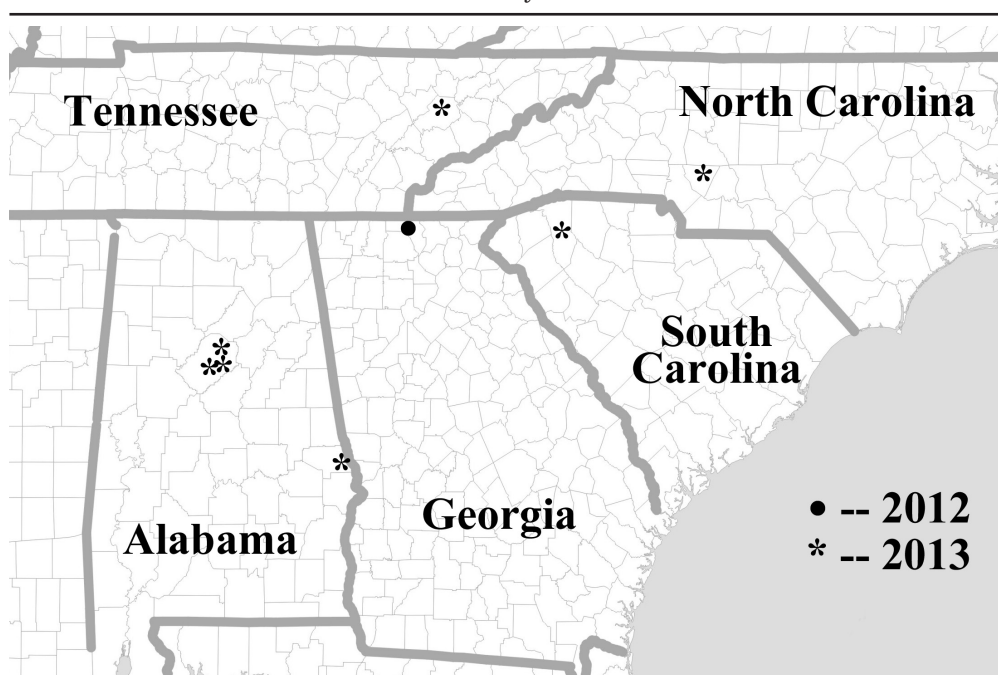


Figure 1. Known records for *Dinumma deponens* from the southeastern United States



Figure 2. Male *Dinumma deponens* from Ruffner (Irondale), Jefferson Co., Alabama (Photo by Christi Jaeger)

TENNESSEE: One female specimen (Fig. 3) from north-eastern Knox Co. (36.105N, 83.923W) TN, in a suburban area, photographed by Audrey Hoff, on August 11.

As you can see in Figure 1, the original 2012 record is centrally located in relation to the 2013 known records. This may indicate that the original introduction was in Georgia and that the moth is (quickly) dispersing out from that location. A quick look at the USDA Natural Resources Conservation Service Plants Database website indicates that *Albizia*, specifically the Silktree (*A. julibrissin* Durazz.) is naturalized across the southeastern U.S., widespread westward at least into eastern Texas and Oklahoma, northward into the southern half of Illinois and in a few counties in southern Indiana, Ohio, Pennsylvania and on Long Island, New York. There are a few additional locations for *A. julibrissin* further north and west. This would indicate that *D. deponens* could disperse through much if not all of this area, depending on the temperature tolerances of the moth. A second *Albizia* species, Woman's tongue (*A. lebeck* (L.) Benth.) is rather widespread in Florida and could conceivably be used by *D. deponens* that disperse into Florida.

The dates of capture are for all months from June to September, with gaps in sightings/captures at the moment of June 16-July 13, July 27-August 10, and August 28-September 22. It is impossible to know for certain if this indicates monthly broods at this point, but it does seem as though the moth may have multiple broods here in the southeastern U.S. If you live in areas where *Albizia* is common, be looking for this moth to arrive in the near future.

Literature Cited

- Lafontaine, J.D. & B. C. Schmidt, 2013. Additions and corrections to the checklist of the Noctuoidea (Insecta, Lepidoptera) of North America north of Mexico. *Zookeys* 264: pp. 227 - 236.
- USDA Natural Resources Conservation Service, Plants Database, accessed Oct. 2013. *Albizia* address: <http://plants.usda.gov/core/profile?symbol=ALBIZ>



Figure 3. Female *Dinumma deponens* from Knox Co. Tennessee (Photo by Audrey Hoff)

Karl Jordan Medal Award Winner James S. Miller

Continued from p. 175

long term work on the Notodontidae and especially the Dioprinae, that the 2013 Committee recognized Dr. James S. Miller with the Karl Jordan Medal. He is continuing his studies on the life histories of Lepidoptera and diversity of insect/plant interactions in eastern Ecuador. In addition, one of his current works in progress is a fascicle on the Doidae and Notodontidae for the "Moths of North America" series, which should be completed shortly.

The Karl Jordan Medal is a prestigious award that may be given biennially by the Society at the Annual Meeting in recognition of original published research of exceptional quality on Lepidoptera in the areas of morphology, taxonomy, systematics, biogeography, and "natural history." The criteria emphasize that the work may be based on a single research publication or on a series of interrelated works and must be at least three but not more than 25 years old. The latter is to insure that the publication(s) have been used by the lepidopterological community and stood the test of time. The Jordan Medal is not intended to be a career award for service rendered to the study of Lepidoptera inasmuch as the Society already has such an award, Honorary Life Member. In addition the nominee does not have to be a member of the Society. Nominations for consideration by the Committee can be received at any time.

Membership

The Lepidopterists' Society is open to membership from anyone interested in any aspect of lepidopterology. The only criterion for membership is that you appreciate butterflies and/or moths! To become a member, please send full dues for the current year, together with your current mailing address and a note about your particular areas of interest in Lepidoptera, to:

Kelly Richers, Treasurer
The Lepidopterists' Society
9417 Carvalho Court
Bakersfield, CA 93311

Dues Rate

Active (regular)	\$ 45.00
Affiliate (same address)	10.00
Student	20.00
Sustaining	60.00
(outside U.S., for above add 5\$ for Mexico/Canada, and 10\$ elsewhere)	
Life	1800.00
Institutional Subscription	60.00
Air Mail Postage, News	15.00
(\$30.00 outside North America)	

Students must send proof of enrollment. Please add \$5.00 to your dues if you live in Canada/Mexico, \$10.00 for any other country outside the U.S. to cover additional mailing costs. Remittances must be in U.S. dollars, payable to "The Lepidopterists' Society". All members receive the **Journal** and the **News** (each published quarterly). Supplements included in the **News** are the Membership Directory, published in even-numbered years, and the Season Summary, published annually. Additional information on membership and other aspects of the Society can be obtained from the Secretary (see address inside back cover).

Change of Address?

Please send permanent changes of address, telephone numbers, areas of interest, or e-mail addresses to:

Julian P. Donahue, Assistant Secretary, The Lepidopterists' Society
735 Rome Drive, Los Angeles, CA 90065-4040. Phone (323) 227-1285, FAX (323) 227-0595,
Julian@lepsoc.net

Our Mailing List?

Contact Julian Donahue for information on mailing list rental.

Missed or Defective Issue?

Requests for missed or defective issues should be directed to: Julian Donahue, Asst. Treasurer, 735 Rome Drive, Los Angeles, CA 90065-4040, (323) 227-1285, **julian@lepsoc.net**. Please be certain that you've really missed an issue by waiting for a subsequent issue to arrive.

Memoirs

Requests for Memoirs of the Society should be sent to Publications Manager, Ken Bliss (address opposite).

Submissions of potential new Memoirs should be sent to:

Lawrence E. Gall
Computer Systems Office
Peabody Museum of Natural History
P. O. Box 208118, Yale University
New Haven, CT 06520-8118
lawrence.gall@yale.edu

Journal of The Lepidopterists' Society

Send inquiries to:
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(see address opposite)
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Book Reviews

Send book reviews or new book releases to the Editor of the **News**:

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(see address opposite)
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Submission Guidelines for the News

Submissions are always welcome! Preference is given to articles written for a non-technical but knowledgeable audience, illustrated and succinct (under 1,000 words, but will take larger). Please submit in one of the following formats (in order of preference):

1. Electronically transmitted file and graphics—in some acceptable format—via e-mail.
2. Article (and graphics) on diskette, CD or thumb drive in any of the popular formats/platforms. Indicate what format(s) your disk/article/graphics are in, and call or email if in doubt. Include printed hardcopies of both articles and graphics. The new InDesign software can handle most common wordprocessing software and numerous photo/graphics software. Media will be returned on request.
3. Color and B+W graphics should be good quality photos suitable for scanning or—preferably—electronic files in TIFF or JPEG format at least 1200 x 1500 pixels for interior use, 1800 x 2100 for covers.
4. Typed copy, double-spaced suitable for scanning and optical character recognition. Original artwork/maps should be line drawings in pen and ink or good, clean photocopies. Color originals are preferred.

Submission Deadlines

Material for Volume 55 must reach the Editor by the following dates:

Issue	Date Due
55 4 Winter	Nov. 15, 2013
56 1 Spring	Feb. 15, 2014
2 Summer	May 20, 2014
3 Fall	Aug. 15, 2014

Reports for Supplement S1, the Season Summary, must reach the respective Zone Coordinator (see most recent Season Summary for your Zone) by Dec. 31. See inside back cover (facing page) for Zone Coordinator information.

Executive Council

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Riodinidae: *Riodinia lysippus*, Explorama Lodge, Peru
July 20, 1989 (see associated article on page 135)



Riodinidae: *Stalachtis phlegia*, Rondonia, Brazil
March 15, 1991 (see associated article on page 135)



Riodinidae: *Chorinea amazon*, Rondonia, Brazil
November 8, 1989 (see associated article on page 135)



Riodinidae : *Ourocnemis archytas*; bottom view is
from directly overhead (Photos by Dan Wade)
See associated article on Panama, page 158



Nymphalidae (Ithomiinae): *Mechanitis menapis saturata*,
mating pair, (Photo by Dan Wade)
See associated article on Panama, page 158